

TD-12

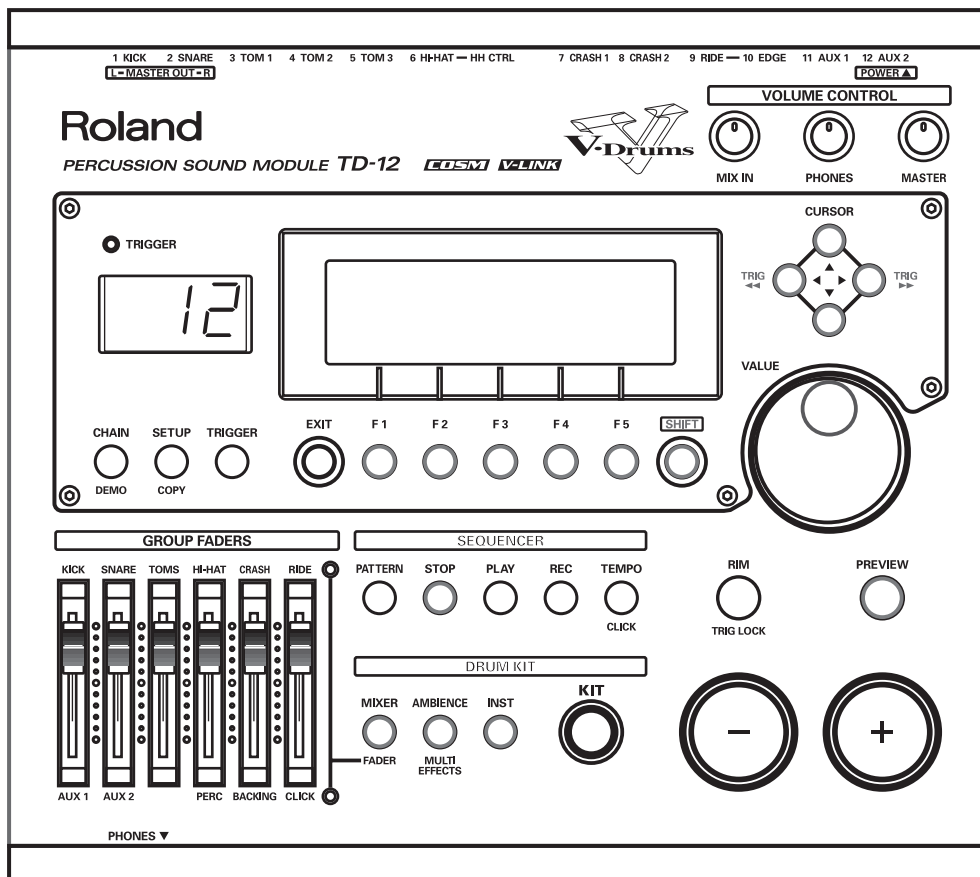
PERCUSSION SOUND MODULE

SERVICE NOTES

Issued by RJA

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SPECIFICATIONS

TD-12: Percussion Sound Module

Sound Generator

Variable Drum Modeling

Maximum Polyphony

64 voices

Instruments

Drum Instruments: 560 (172,161 variations)

Backing Instruments: 262

Drum Kits

50

Drum Kit Chains

16 chains (32 steps per chain)

Instrument Parameters

V-EDIT (KICK):

Shell Depth, Head Type, Head Tuning, Muffling, Snare Buzz

V-EDIT (SNARE):

Shell Material, Shell Depth, Head Type, Head Tuning,
Muffling, Strainer Adjustment

V-EDIT (TOM):

Shell Depth, Head Type, Head Tuning, Muffling, Snare Buzz

V-EDIT (HI-HAT):

Cymbal Size, Fixed Hi-Hat

V-EDIT (CYMBAL):

Cymbal Size, Sizzle Type, Sustain

EDIT:

Pitch, Decay

Ambience Parameters

Room Type, Room Size, Wall Type, Mic Position, Room Shape

Mixer Parameters

Volume, Pan, Minimum Volume, Output Assign

Effect Types

Pad Equalizer (each pad)

Pad Compressor (each pad)

Multi-Effects: 5 types

Reverb (for backing part)

Percussion Sets

8

Sequencer

User Patterns: 100

Preset Patterns: 150

Parts: 6

Play Type: Oneshot, Loop, Tap

Tempo: 20_260

Resolution: 192 ticks per quarter note

Recording Method: Realtime

Maximum Note Storage: approx. 20,000 Notes

Click Sounds: 20 types

Display

64 x 240 dots (backlit graphic LCD)

7 segments, 3 characters (LED)

Trigger Indicator (LED)

Controllers

Faders: 6

Preview Button (velocity: 3 steps)

Connectors

Trigger Input Jack x 12

Hi-Hat Control Jack (for VH-11, VH-12, and FD-8)

Master Output Jacks (L/MONO, R): 1/4 inch phone type

Direct Output Jacks (1, 2): 1/4 inch phone type

Headphones Jack: Stereo 1/4 inch phone type

Mix in Jack: Stereo 1/4 inch phone type

MIDI Connectors (IN, OUT/THRU)

AC Inlet

Output Impedance

1.0 k ohms

Power Supply

AC 115 V, AC 117 V, AC 220 V, AC 230 V, AC 240 V
(50/60 Hz)

Power Consumption

13 W

Dimensions

260 (W) x 248 (D) x 108 (H) mm

10-1/4 (W) x 9-13/16 (D) x 4-1/4 (H) inches

Weight

2.6 kg / 5 lbs 12 oz

Accessories

Owner's Manual (72908223)

Power Cord(117) (00894378)

Power Cord(230V) (00894389)

Power Cord(240VE) (00907001)

Power Cord(240VA) (23495124)

Options

Pads (PD-8, PD-85, PD-105, PD-125)

Kick Triggers (KD-7, KD-8, KD-85, KD-120)

Hi-Hats (VH-11, VH-12)

Hi-Hat Control Pedal (FD-8)

Stands (MDS-12BK, MDS-20BK)

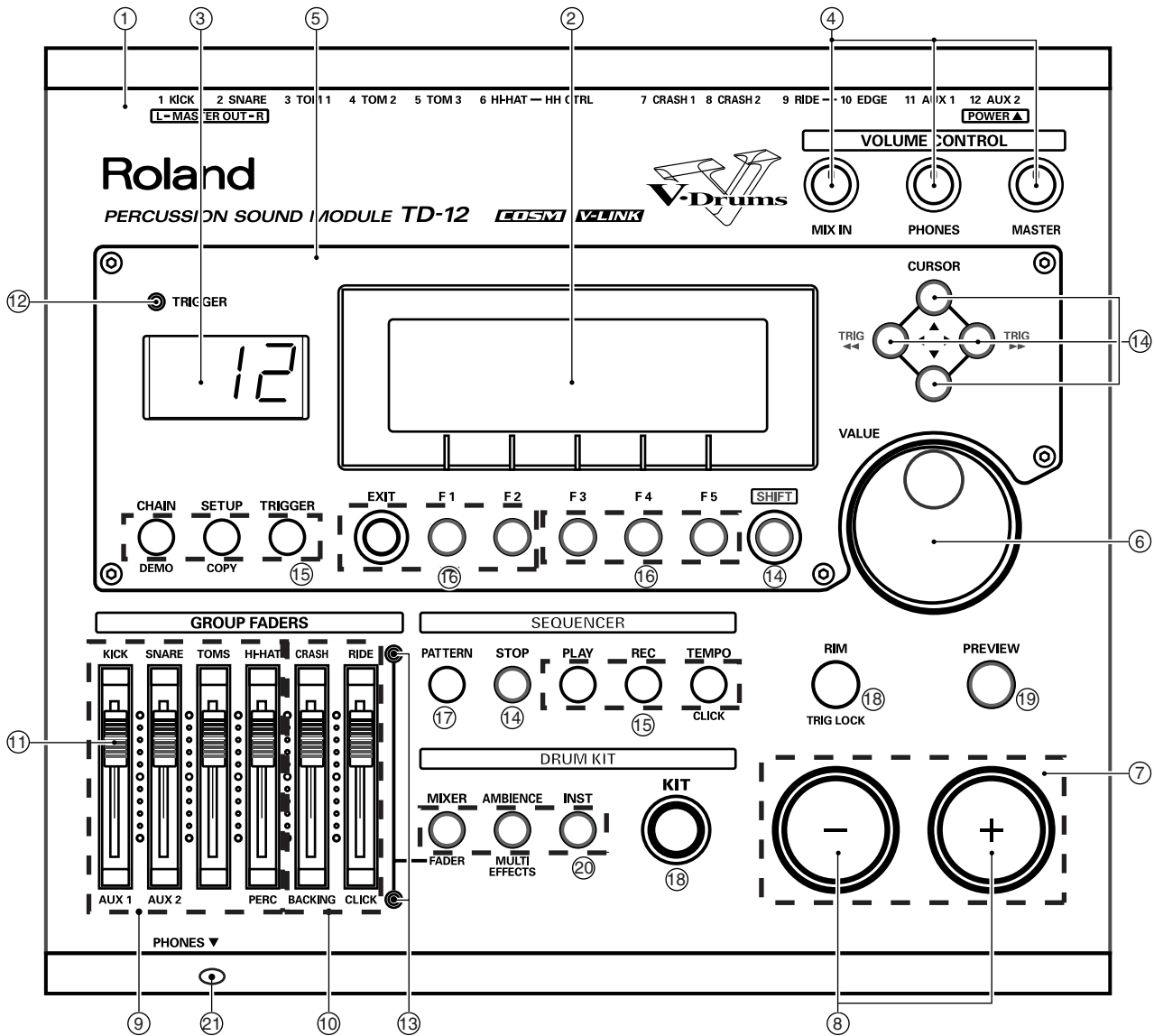
Cymbal Mount (MDY-10U)

Pad Mount (MDH-10U)

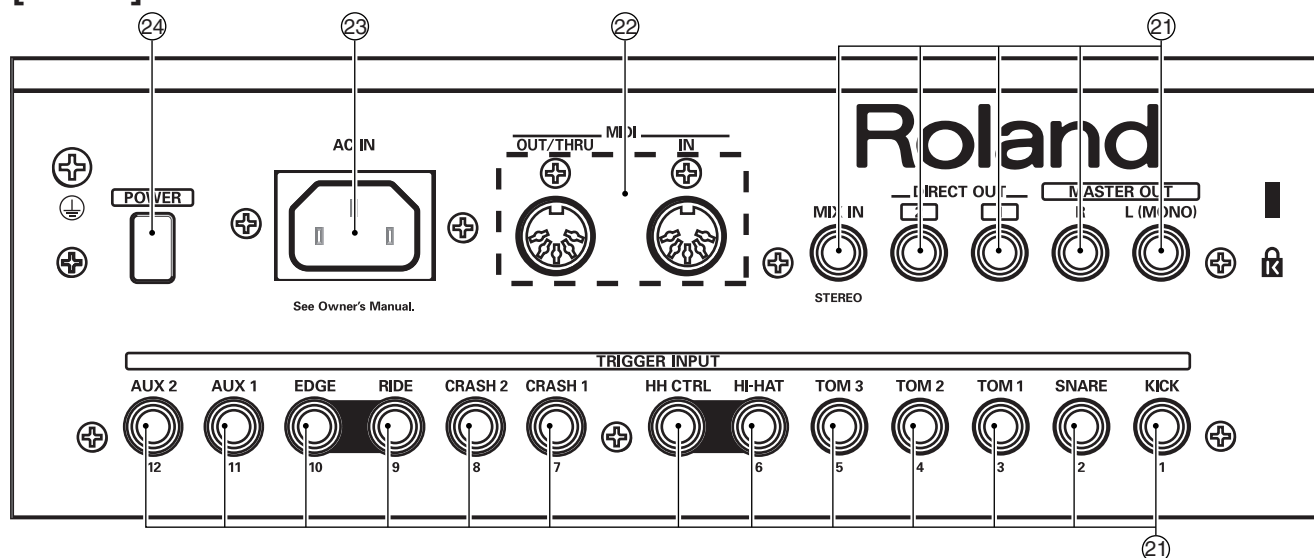
- * *A separate publication titled "MIDI Implementation" is also available. It provides complete details concerning the way MIDI has been implemented on this unit. If you should require this publication (such as when you intend to carry out bytelevel programming), please contact the nearest Roland Service Center or authorized Roland distributor.*
- * *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

LOCATION OF CONTROLS

[TOP]



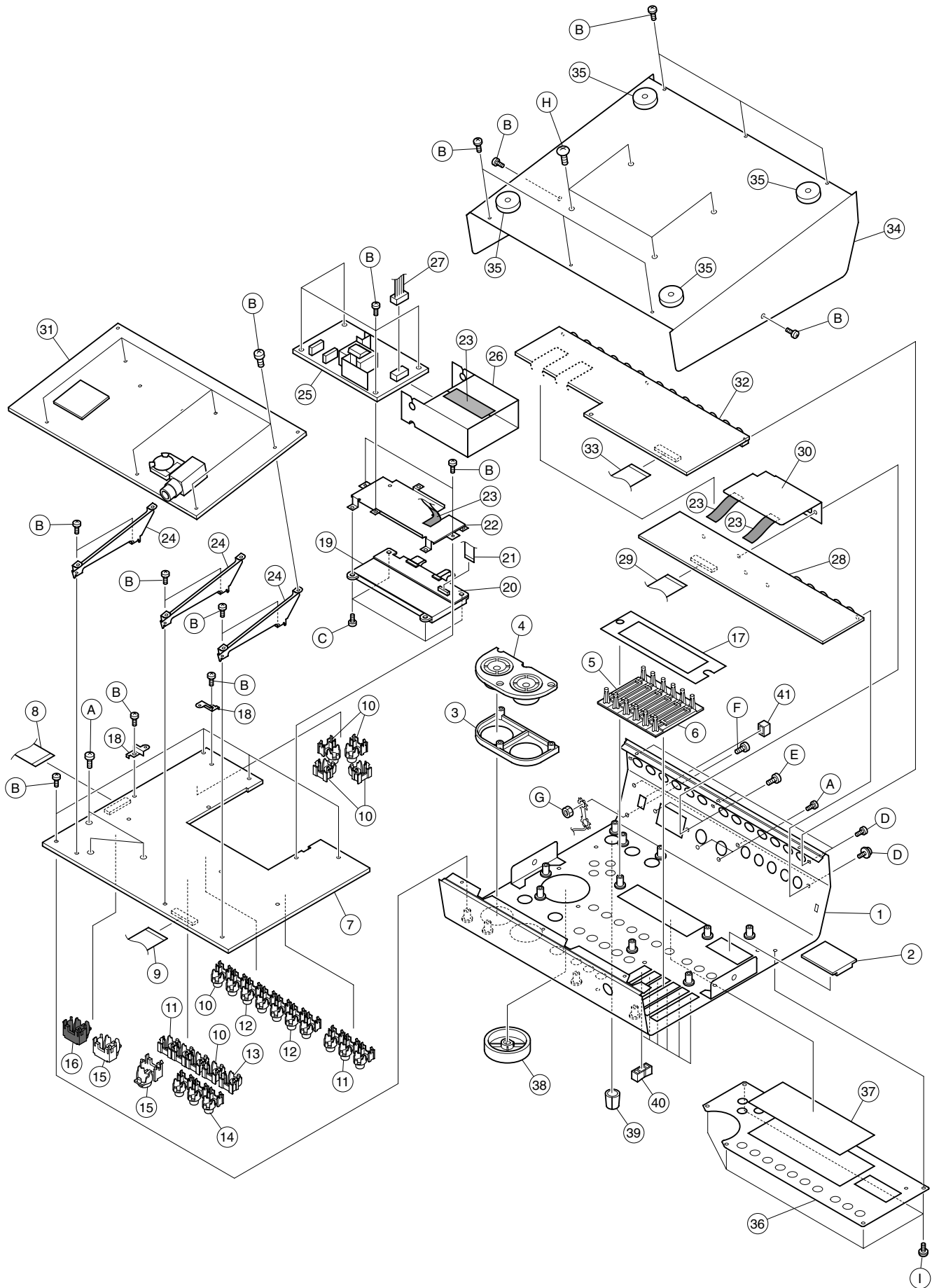
[REAR]



LOCATION OF CONTROLS PARTS LIST

No	PART CODE	PART NAME	DESCRIPTION	QTY
1	03891990	CASING	TOP PANEL	1
2	03891867	CASING	DISPLAY COVER	1
	03230690	DISPLAY UNIT	LCD	1
3	03891878	CASING	LED COVER	1
	01342534	DISPLAY UNIT	LED 7 SEGMENT	1
4	03125589	KNOB,BUTTON	M R-KNOB	3
	01230034	POTENTIOMETER	12M/M ROTARY POTENTIOMETER	3
5	03891901	MISCELLANEOUS	PANEL SHEET	1
6	22485303	KNOB,BUTTON	D R-KNOB(ALPHA-DIAL)	1
	01905467	ENCODER	ROTARY ENCODER	1
7	03891989	KNOB,BUTTON	RUBBER SW	1
	03891923	CASING	RUBBER SW ESCUTCHEON	1
8	13129734	SWITCH	SWITCH(PUSH)	2
9	03453845	CASING	D S-ESCUTCHEON	1
10	03891934	CASING	D S-ESTC	1
11	22485295	KNOB,BUTTON	D S-KNOB	6
	13339467	POTENTIOMETER	POTENTIOMETER(SLIDE)	6
12	00127367	DIODE	LED (RED/GREEN)	1
13	00785856	DIODE	LED	2
14	02674234	KNOB,BUTTON	F C-KEYTOP	6
	01340290	SWITCH	TACT SWITCH	6
15	02674212	KNOB,BUTTON	F C-KEYTOP	2
	01787045	DIODE	LED (ORANGE)	4
	00560745	DIODE	LED (GREEN)	1
	00348490	DIODE	LED (RED)	1
	01340290	SWITCH	TACT SWITCH	6
16	02674267	KNOB,BUTTON	F C-KEYTOP	2
	01340290	SWITCH	TACT SWITCH	6
17	02674190	KNOB,BUTTON	F C-KEYTOP	1
	01787045	DIODE	LED (ORANGE)	1
	01340290	SWITCH	TACT SWITCH	1
18	02013090	KNOB,BUTTON	F C-KEYTOP	2
	01787045	DIODE	LED (ORANGE)	1
	00560745	DIODE	LED (GREEN)	1
	01340290	SWITCH	TACT SWITCH	2
19	02123467	KNOB,BUTTON	F C-KEYTOP	1
	01340290	SWITCH	TACT SWITCH	1
20	03892001	KNOB,BUTTON	F C-KEYTOP	1
	01787045	DIODE	LED (ORANGE)	3
	01340290	SWITCH	TACT SWITCH	3
21	00569278	JACK,EXT TERMINAL	6.5MM JACK	13 +5 +1
22	13429676	JACK,EXT TERMINAL	MIDI CONNECTOR	1
23	02675701	WIRING, CABLE	AC INLET ASSY	1
24	12499175	KNOB,BUTTON	BUTTON	1
	01676512	SWITCH	PUSH SWITCH	1

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

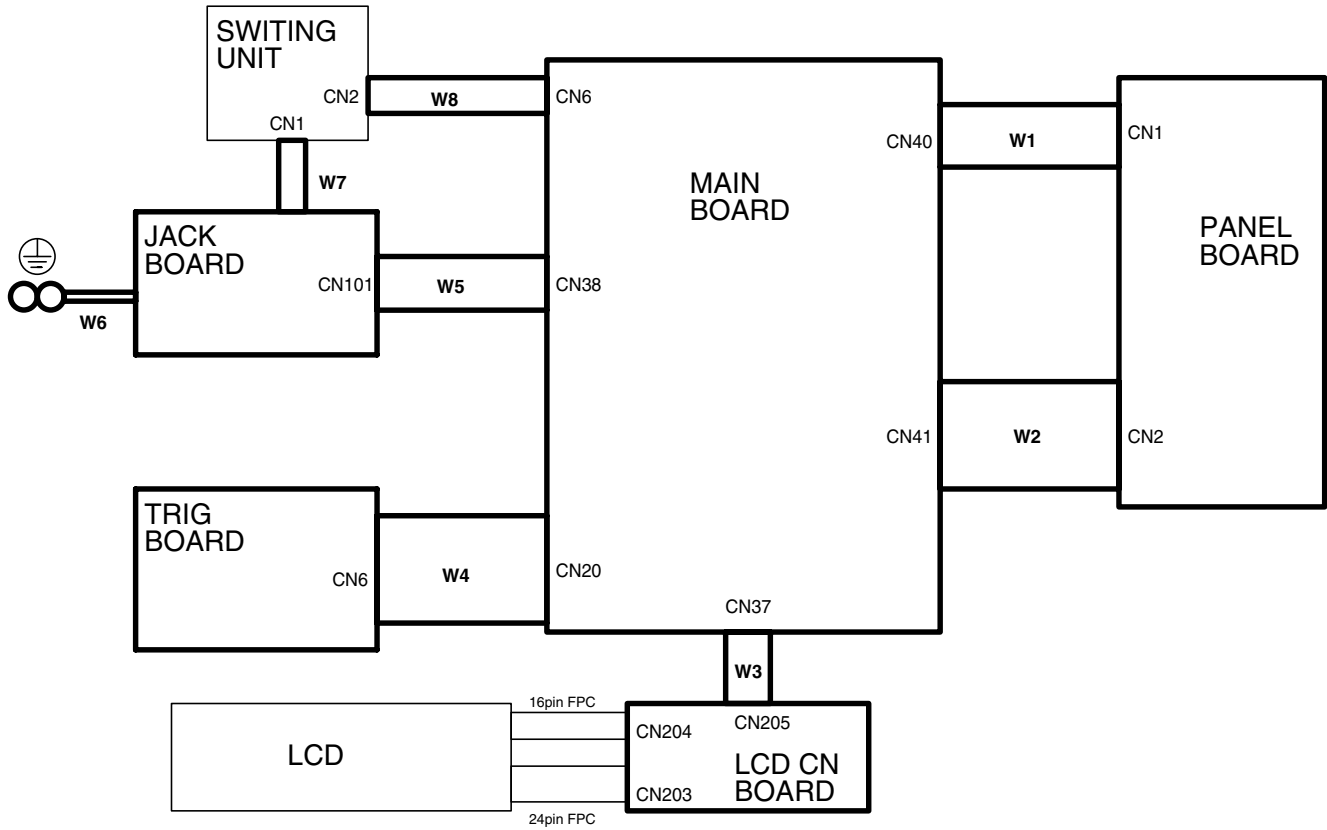
[Parts]

No	PART CODE	PART NAME	DESCRIPTION	Q'TY	
1	03891990	CASING	TOP PANEL	1	
2	03891878	CASING	LED COVER	1	
3	03891923	CASING	RUBBER SW ESCUTCHEON	1	
4	03891989	KNOB,BUTTON	RUBBER SW	1	
5	03891934	CASING	D S-ESCUTCHEON	SX2H-A BLK L=30	1
6	03453845	CASING	D S-ESCUTCHEON	SX4H-A BLK L=30	1
7	72909867	PWB ASSY	PANEL KEYTOP ASSY	1	
8	02670889	WIRING, CABLE	BAN CARD	BNCD-P=1.00-K-26-80	1
9	03891834	WIRING, CABLE	BAN CARD	BNCD-P=1.00-K-40-180	1
10	02674234	KNOB,BUTTON	F C-KEYTOP	SX1H-A BLK	6
11	02674212	KNOB,BUTTON	F C-KEYTOP	SX3H-A CLR	2
12	02674267	KNOB,BUTTON	F C-KEYTOP	SX3H-A BLK	2
13	02674190	KNOB,BUTTON	F C-KEYTOP	SX1H-A CLR	1
14	03892001	KNOB,BUTTON	F C-KEYTOP	SX3H-A GRS	1
15	02013090	KNOB,BUTTON	F C-KEYTOP	MX1H CLR	2
16	02123467	KNOB,BUTTON	F C-KEYTOP	MX1H BLK	1
17	03895156	MISCELLANEOUS	DISPLAY CUSHION	1	
18	03891889	CHASSIS	PWR SPLY HOLDER	2	
19	03230690	DISPLAY UNIT	LCD	SCLCMEAMNI0065	1
21	02789112	WIRING, CABLE	BAN CARD	BNCD-P=1.00-K-10-100	1
22	03891890	CHASSIS	LCD HOLDER	1	
23	40232123	MISCELLANEOUS	ACETATE TAPE	NITTO #5 BLACK W20MM 30M 20P	4
24	03891978	CHASSIS	PWB HOLDER MAIN	3	
25	03782334	POWER SUPPLY UNIT	SWITCHING REGULATOR	A1DU2L3B184	1
26	02894367	MISCELLANEOUS	INSULATING COVER	DA-2496 SW-PS	1
27	03453512	WIRING, CABLE	WIRING W1	1	
29	03453667	WIRING, CABLE	BAN CARD	BNCD-P=1.00-K-28-50	1
30	03902767	MISCELLANEOUS	INSULATING SHEET	1	
31	72903345	PWB ASSY	MAIN BOARD ASSY	1	
33	03453723	WIRING, CABLE	BAN CARD	BNCD-P=1.00-K-40-60	1
34	03891845	CASING	BOTTOM COVER	1	
35	01235378	MISCELLANEOUS	FOOT	4	
36	03891901	MISCELLANEOUS	PANEL SHEET	1	
37	03891867	CASING	DISPLAY COVER	1	
38	22485303	KNOB,BUTTON	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
39	03125589	KNOB,BUTTON	M R-KNOB	MF-ELA BLK/LCG	3
40	22485295	KNOB,BUTTON	D S-KNOB	S BLK/LCG	6
41	12499175	KNOB,BUTTON	BUTTON	JSPUE001A	1
	72909878	PWB ASSY	JACK SHEET ASSY	1	
	NOTE: 'JACK SHEET ASSY' includes the following parts.				
20	*****	PWB ASSY	LCD CN BOARD ASSY	1	
28	*****	PWB ASSY	JACK BOARD ASSY	1	
32	*****	PWB ASSY	TRIG BOARD ASSY	1	

[Screws]

No	PART CODE	PART NAME	DESCRIPTION	Q'TY	
A	40011312	SCREWS	SCREW 3X8	BINDING TAPTITE P BZC	5
B	40011090	SCREWS	SCREW 3X6	BINDING TAPTITE B BZC	32
C	40011023	SCREWS	SCREW M3X8 PAN B-TITE FECM	4	
D	40011490	SCREWS	SCREW M3X6	PAN MACHINE W/SW BZC	6
E	40011123	SCREWS	SCREW 4X8	BINDING TAPTITE B BZC	2
F	40010345	SCREWS	SCREW M4X10	BINDING MACHINE FE BZC	1
G	40011745	SCREWS	HEX NUT M4	SPRING NUT FE ZC	1
H	40238145	SCREWS	SCREW M5X12	TRUSS BZC	4
I	40569934	SCREWS	SCREW M3X6 SPW NI	HEX SOCKET SPW NI	5

WIRING DIAGRAM



[Parts]

No	PARTCODE	PARTNAME
W1	02670889	BAN CARD BNCD-P=1.00-K-26-80
W2	03891834	BAN CARD BNCD-P=1.00-K-40-180
W3	02789112	BAN CARD BNCD-P=1.00-K-10-100
W4	03453723	BAN CARD BNCD-P=1.00-K-40-60
W5	03453667	BAN CARD BNCD-P=1.00-K-28-50
W6	02675701	WIRING W3(AC INLET+GND)
W7	02678478	WIRING W1
W8	03453512	WIRING W1

PARTS LIST

SAFETY PRECAUTIONS:
The parts marked \triangle have safety-related characteristics. Use only listed parts for replacement.

Due to one or more of the following reasons, parts with parts code ***** cannot be supplied as service parts.

- Part supplied only as a component in a complete assembly
- Copyright does not permit the part to be supplied
- Part is sold commercially

NOTE: The parts marked # are new. (initial parts) The description "Q'TY" means a necessary number of the parts per one product.

For EU Countries

Apparatus containing Lithium batteries

CAUTION	VAROITUS	ADVARSEL!	ADVARSEL	VARNING
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.	Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.	Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.	Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.	Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparatleverkaren. Kassera använt batteri enligt fabrikantens instruktion.

CASING

#	03891845	BOTTOM COVER		1
#	03891867	DISPLAY COVER		1
#	03891878	LED COVER		1
#	03891923	RUBBER SW ESCUTCHEON		1
	03453845	D S-ESCUTCHEON	SX4H-A BLK L=30	1
#	03891934	D S-ESTC	SX2H-A BLK L=30	1
#	03891990	TOP PANEL		1

CHASSIS

#	03891890	LCD HOLDER		1
#	03891889	PWR SPLY HOLDER		2
#	03891978	PWB HOLDER MAIN		3

KNOB, BUTTON

	12499175	BUTTON	JSPUE001A	1
	03125589	M R-KNOB	MF-ELA BLK/LCG	3
	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
	22485295	D S-KNOB	S BLK/LCG	6
#	03891989	RUBBER SW		1

SWITCH

\triangle	01676512	PUSH SWITCH	SDKLA10200	SW101 JAB	1
	01340290	TACT SWITCH	EVQ11A H=5.0	SW19,SW18,SW17,SW15,SW13,SW11,SW7,SW4,SW6,SW5,SW20,SW9,SW2,SW22,SW23,SW24,SW25,SW16,SW14,SW12,SW8,SW1,SW3,SW21,SW10 PAB	25
	13129734	SWITCH(PUSH)	SKHCAD	SW26,SW27 PAB	2

JACK, EXT TERMINAL

	00569278	6.5MM JACK	LGR4609-7100	JK103,JK105,JK104,JK106,JK102 JAB ,JK1 on MAB ,JK16,JK10,JK13,JK12,JK11,JK14,JK17,JK18,JK19,JK20,JK15,JK8,JK9 TRB	13 +5 +1
	13429676	MIDI CONNECTOR	YKF51-5048 (TWIN)	JK101 JAB	1

DISPLAY UNIT

	03230690	SCLCMEAMNI0065	LCD		1
	NOTE: Replacement SCLCMEAMNI0065 should be made on a unit base.				
	01342534	SL-9351S	LED 7 SEGMENT	LED5 PAB	1
	NOTE: Replacement SL-9351S should be made on a unit base.				

POWER SUPPLY UNIT

\triangle	03782334	A1DU2L3B184	SWITCHING REGULATOR		1
	NOTE: Replacement A1DU2L3B184 should be made on a unit base.				

PCB ASSY

#	72909878	JACK SHEET ASSY			1
		NOTE: 'JACK SHEET ASSY' includes the following parts.			
#	*****	TD-12 TRIG BOARD ASSY	Assy(Unit)		1
#	*****	TD-12 LCD CN BOARD ASSY	Assy(Unit)		1
#	*****	TD-12 JACK BOARD ASSY	Assy(Unit)		1
		NOTE: 'TD-12 JACK BOARD ASSY' includes the following parts.			
△	02675701	AC INLET ASSY	WIRING W3(AC INLET+GND)		1
△	02678478	WIRING	WIRING W1	CN102 JAB	1
#	72909867	PANEL KEYTOP ASSY			1
		NOTE: 'PANEL KEYTOP ASSY' includes the following parts.			
	02013090	F C-KEYTOP	MX1H CLR		2
	02123467	F C-KEYTOP	MX1H BLK		1
	02674190	F C-KEYTOP	SX1H-A CLR		1
	02674212	F C-KEYTOP	SX3H-A CLR		2
	02674234	F C-KEYTOP	SX1H-A BLK		6
#	02674267	F C-KEYTOP	SX3H-A BLK		2
#	03892001	F C-KEYTOP	SX3H-A GRS		1
	02123012	ENCODER HOLDER			1
	01455901	LED SPACER	LH-36-9		1
	03233245	LED SPACER	LH-5S-8.7		2
#	72903345	MAIN BOARD ASSY			1

IC

	01672634	TC74HC4052AFT(EL)	IC (COMS)	IC36 on MAB ,IC17,IC20,IC21 TRB	3
					+1
	01908701	TC74VHC14FT(EL)	IC (CMOS)	IC208 on MAB ,IC16,IC22 TRB	2
					+1
	15289128	BA10324AF	IC (OP AMP)	IC35 on MAB IC1R,IC19,IC18,IC1S,IC1P,IC1N,IC1M,IC1 L,IC1K,IC1J,IC1T TRB	11
					+1
	15189261	M5218AFP-600E	IC (BIPOLAR OP AMP)	IC101,IC102,IC105 JAB IC28,IC30,IC26,IC15,IC23,IC17 on MAB,IC4,IC3,IC2 PAB,IC7 TRB	1
					+3
					+6
	02456756	TC74VHCT04AFT(EL)	IC (CMOS)	IC103 JAB	1
	02900545	PC410LKNIP	IC (PHOTO COUPLER)	IC104 JAB	1
	03785601	SN74LV04APWR	IC (CMOS)	IC1 PAB	1
#	03897678	UPD703106AGJ-099-UEM	IC (CPU)(TD12M 1.00)	IC2 on MAB	1
#	03897689	UPD703106AGJ-100-UEM	IC (CPU)(TD12T 1.00)	IC10 on MAB	1
	01455956	TC223C660CF-503	IC (RA08-503)	IC52 on MAB	1
#	03786223	CY62146DV30LL-55ZSXIT	IC (SRAM)	IC3 on MAB	1
	03787889	M11L416256SA-35TG 0.20	IC (DRAM)	IC300 on MAB	1
	03453490	MR27V12800J-OT4TN (TD20-1)	IC (MASK ROM)	IC205 on MAB	1
	03453501	MR27V12800J-OT5TN (TD20-2)	IC (MASK ROM)	IC206 on MAB	1
	03341590	TC58FVM5B2ATG65BAH	IC (FLASH MEMORY)	IC1 on MAB	1
	03237689	M12L64164A-7T	IC (MEMORY DRAM)	IC4 on MAB	1
	03670356	AK4626VQP	IC (AD/DA)	IC25 on MAB	1
	01458401	TC74LVX4245FS(EL)	IC (TTL)	IC64,IC75,IC72,IC66 on MAB	4
	01901623	TC74LVXC3245FS	IC (CMOS)	IC53,IC49 on MAB	2
	01349590	TC7WU04FU(TE12L)	IC (CMOS)	IC5 on MAB	1
	01679090	TC74VHC08FT(EL)	IC (CMOS)	IC69,IC200,IC50,IC7 on MAB	4
	01783523	TC74VHCT245AFT(EL)	IC (CMOS)	IC54 on MAB	1
	02456734	TC74VHCT174AFT(EL)	IC (CMOS)	IC56 on MAB	1
	02565212	SN74LV245A-PW	IC (CMOS)	IC63,IC65,IC68,IC70,IC71,IC74 on MAB	6
	03016167	TC74VHCT08AFT(EL)	IC (CMOS)	IC61,IC8,IC41,IC40,IC51 on MAB	5
	01455301	TC7WH04FU(TE12L)	IC (CMOS)	IC400 on MAB	1
	15289106	M5238AFP-600C	IC (JFET OP AMP)	IC6 on MAB	1
	03347023	TA79L05F(TE12L)	IC (REGULATOR)	IC31 on MAB	1
	15289402	TA78L05F(TE12L)	IC (REGULATOR)	IC29 on MAB	1
	03123734	PQ033DZ01ZP	IC (REGULATOR)	IC201 on MAB	1
	15199937	M51953BFP-600C	IC (RESET)	IC9 on MAB	1

TRANSISTOR

	15319115	2SC4213-A(TE85L)	TRANSISTOR	Q104,Q102,Q103,Q101 JAB ,Q9,Q6 on MAB	4
					+2
	00239801	DTA114EU T-106	TRANSISTOR	Q106 JAB ,Q1 on MAB	1
					+1
	00239812	DTC114EUT106	TRANSISTOR	Q105 JAB ,Q13,Q4,Q2 on MAB	1
					+3
	01783612	RN2426(TE85L)	TRANSISTOR	Q6,Q4,Q3,Q5,Q1,Q2 PAB	6
	01121278	2SA1576A T106 QRS	TRANSISTOR	Q3,Q11 on MAB	2
	15309103	2SA1202-Y(TE12L.C)	TRANSISTOR	Q10,Q7 on MAB	2
	01121289	2SC4081 T106 QRS	TRANSISTOR	Q21,Q20,Q19,Q18,Q17,Q12,Q22,Q23,Q16 on MAB	9
	15319102	2SC2882-Y(TE12L.C)	TRANSISTOR	Q5,Q8 on MAB	2

DIODE				
01897189	MA147-(TX)	ARRAY DIODE	DA202 on MAB ,D2T,D7,D1R,D1P,D1N,D1M,D1L,D1S,D1K ,D1T,D1J,D2S,D2R,D2P,D2N,D2M,D2L,D2 K,D6T,D8,D6M,D54,D3J,D5S,D2J,D3S,D3K, D6P,D6S,D4T,D4S,D4P,D4M,D4L,D4K,D5 M,D3T,D6L,D3R,D3L,D3M,D4J,D3P,D6K,D 5J,D5K,D5L,D5P,D5T,D6J,D3N TRB	51 +1
01897178	MA142WA-(TX)	ARRAY DIODE	D103,D102 JAB ,DA7,DA13,DA9,DA21,DA17 on MAB ,D61,D59,D63,D57,D55,D65 TRB	6 +2 +5
15339130	MA142WK-(TX)	ARRAY DIODE	D101 JAB ,DA203,DA2,DA6,DA8,DA10,DA12,DA16, DA20,DA24,DA30,DA31,DA200 on MAB,D9,D14,D13,D12,D11,D10,D8,D7,D6, D5,D4,D3,D1,D2 PAB,D56,D58,D60,D62,D64,D66 TRB	6 +1 +1 4 +1 2
00348490	SLR-325VCT31	LED (RED)	LED4 PAB	1
00560745	SLR-325MCT31	LED (GREEN)	LED10,LED12 PAB	2
00785856	SLR-342VR3F	LED	LED15,LED13 PAB	2
01787045	SLR-325DCT31	LED (ORANGE)	LED1,LED3,LED8,LED11,LED16,LED14,LE D9,LED7,LED2 PAB	9
00127367	SPR-39MVW	LED (RED/GREEN)	LED6 PAB	1
01127489	RB715F T106	SCHOTTKY DIODE	DA1 on MAB	1
02675734	UDZS TE-17 12B	ZENER DIODE	D1 on MAB	1
RESISTOR				
00567256	RPC05T 562 J	MTL.FILM RESISTOR	R129,R136,R139,R141,R146,R128,R149,R144, R124,R121,R125,R135 on MAB ,R76 TRB	1 +1 2
00567289	RPC05T 103 J	MTL.FILM RESISTOR	R127,R125,R137,R117 JAB ,R55,R438,R216,R217,R218,R219,R256,R257, R38,R269,R8,R601,R608,R609,R633,R639,R3 2,R267,R20,R700,R10,R214,R22,R28,R33,R35 ,R45,R83 ,R99,R106,R109,R115 on MAB ,R15M,R15L,R3R,R6R,R15J,R6T,R6S,R15K,R 6P,R6M,R3L,R3T,R3N,R3K,R18L,R18T,R6K, R3P,R3J,R18J,R73,R3M,R3S,R6J,R6L,R6N,R 18S,R18M,R18K,R15T,R75,R15S,R91,R18P,R 15P TRB	35 +4 +3 2
01011856	RPC05T 0R0 J	MTL.FILM RESISTOR	R123,R135,R138,R128,R101,R133,R142,R106, R118 JAB ,R138,R21,R56,R100,R123,R132,R9,R143,R14 8,R403,R405,R801,R127 on MAB,R1 PAB,C68 TRB	1 +9 +1 +1 3
00567023	RPC05T 101 J	MTL.FILM RESISTOR	R148 JAB ,R117,R410,R233,R613,R407,R206,R202,R18, R235,R116,R236,R158,R161,R162,R164,R167, R168,R170,R175,R182 ,R13,R14,R16,R17,R15,R18 PAB,R266,R264,R270,R274,R272,R268,R260, R262 TRB ,R187,R200,R194,R111,R406,R620,R622,R623 ,R636,R612,R611,R232,R610,R605,R234,R435 ,R238,R434,R417,R416,R415,R414,R637,R702 ,R802,R803,R411,R237,R239 on MAB	8 +1 +6 +4 9
00567156	RPC05T 102 J	MTL.FILM RESISTOR	R115,R183,R111 JAB ,R701,R258,R95,R29,R259,R78 on MAB ,R8L,R20M,R20L,R20J,R19S,R19P,R20T,R8J, R7S,R7P,R7M,R20P,R7L,R20K,R7K,R7N,R1 9T,R7J,R20S,R7R,R7T,R8K,R8M,R19M,R19L ,R8P,R19K,R8N,R8R,R8S,R8T,R19J TRB	32 +3 +6
00567323	RPC05T 223 J	MTL.FILM RESISTOR	R215 on MAB ,R23M,R11K,R11L,R11M,R11N,R11P,R23T, R23L,R23P,R23S,R11J,R9M,R24K,R24J,R23 K,R9P,R24L,R10P,R9K,R9L,R10J,R9S,R10T, R9N,R9T,R10K,R10L ,R10N,R10R,R10S,R9R,R11S,R9J,R21L,R21 M,R21P,R21K,R11R,R11T,R12J,R12L,R12M, R12N,R12P,R10M,R24M,R21S,R22K,R12K, R21J,R24S,R24T,R22J,R24P,R22L,R12R,R12 T,R21T,R12S,R22M,R23J,R22T,R22S,R22P TRB	64 +1
00567390	RPC05T 683 J	MTL.FILM RESISTOR	R112,R144 JAB ,R4T,R5P,R5R,R5M,R5L,R5K,R5J,R5N,R4M, R4N,R4P,R4S,R4R,R4K,R17J,R17T,R4L,R16 P,R16T,R17P,R17K,R4J,R16S,R16M,R16L,R1 6K,R16J,R17M,R5S,R92,R72,R17L,R17S,R5T TRB	34 +2
00567412	RPC05T 104 J	MTL.FILM RESISTOR	R116,R126,R134,R132,R122,R105,R136,R124 JAB,R276,R277,R278,R279 LCB,R248,R2,R4,R30,R31,R81,R82,R97,R98, R112,R118,R169,R249,R250,R251,R621,R253, R254,R255,R421,R422,R619,R252,R163 on MAB ,	44 +4 +8 +2 4

RESISTOR

			R13L,R13M,R13P,R13S,R2J,R2L,R14J,R1T,R2K,R1S,R13T,R13K,R13J,R2T,R1M,R1P,R1R,R1L,R1K,R71,R2M,R1N,R94,R2N,R273,R1J,R271,R269,R267,R265,R261,R93,R275,R14K,R2P,R2R,R263,R2S,R70,R14L,R14M,R14P,R14S,R14T TRB	
00126112	EXBV8V101JV	RESISTOR ARRAY	RA19,RA64,RA206 on MAB ,RA6,RA9,RA3 TRB	3 +3
00344278	EXBV8V102JV	RESISTOR ARRAY	RA10 TRB	1
00902856	EXBV8V104JV	RESISTOR ARRAY	RA1,RA4,RA7 TRB	3
01126201	EXBV8V332JV	RESISTOR ARRAY	RA5,RA2,RA8 TRB	3
15399750	MCR100 39 1W	RESISTOR	R280,R281 LCB	2
15399705	MCR25JZH331	MTL.FILM RESISTOR	R156,R153,R150,R152 JAB	4
00567034	RPC05T 121 J	MTL.FILM RESISTOR	R147 JAB	1
00567067	RPC05T 221 J	MTL.FILM RESISTOR	R149,R146 JAB ,R8 PAB	2 +1
00567290	RPC05T 123 J	MTL.FILM RESISTOR	R21,R103,R120,R130,R131,R140,R141,R104 JAB	8
00567367	RPC05T 393 J	MTL.FILM RESISTOR	R113,R109 JAB	2
00567423	RPC05T 124 J	MTL.FILM RESISTOR	R108 JAB	1
00567456	RPC05T 224 J	MTL.FILM RESISTOR	R114,R143,R110,R145 JAB	4
00567512	RPC05T 564 J	MTL.FILM RESISTOR	R107 JAB	1
01569734	MCR25 JZH J 681	MTL.FILM RESISTOR	R57,R154,R151,R155 JAB	4
00566967	RPC05T 470 J	MTL.FILM RESISTOR	R231,R222,R229,R400,R401,R617,R618,R225 on MAB,R3,R5,R4,R2,R7,R6 PAB	6 +8
00567112	RPC05T 471 J	MTL.FILM RESISTOR	R26 on MAB,R19 PAB	1 +1
00567245	RPC05T 472 J	MTL.FILM RESISTOR	R54,R16,R220,R93,R92,R75,R41,R37,R76,R632 on MAB,R10,R12,R9,R11 PAB	4 +1 0
01450490	NTH5G1M33B103J	THERMISTOR RESISTOR	R100 PAB	1
00567378	RPC05T 473 J	MTL.FILM RESISTOR	R102,R103,R804 on MAB	3
00567501	RPC05T 474 J	MTL.FILM RESISTOR	R107 on MAB	1
00567556	RPC05T 105 J	MTL.FILM RESISTOR	R23 on MAB	1
00567689	RPC05T 106 J	MTL.FILM RESISTOR	R34 on MAB	1
15399945	MCR100 101J	RESISTOR	R77,R145,R79,R94,R96,R140 on MAB	6
00566867	RPC05T 100 J	MTL.FILM RESISTOR	R119,R120 on MAB	2
00566912	RPC05T 220 J	MTL.FILM RESISTOR	R110,R273,R40 on MAB	3
00566990	RPC05T 680 J	MTL.FILM RESISTOR	R429,R14,R433,R341,R6,R15,R17,R27,R39,R24 on MAB	10
00567201	RPC05T 272 J	MTL.FILM RESISTOR	R5 on MAB	1
00567212	RPC05T 332 J	MTL.FILM RESISTOR	R108,R114 on MAB	2
00567267	RPC05T 682 J	MTL.FILM RESISTOR	R240,R247,R246,R245,R244,R243,R242,R241 on MAB	8
00567278	RPC05T 822 J	MTL.FILM RESISTOR	R70,R72,R73,R89,R90,R91 on MAB	6
00567345	RPC05T 333 J	MTL.FILM RESISTOR	R126,R147,R142,R130,R122,R87,R69,R137 on MAB	8
00909801	EXBV8V220JV	RESISTOR ARRAY	RA13 on MAB	1
01011845	EXBV8V0R000V	RESISTOR ARRAY	RA102 on MAB	1
01013578	EXBV8V470JV	RESISTOR ARRAY	RA208,RA12,RA4 on MAB	3
01457145	EXBE10C103J	RESISTOR ARRAY	RA6,RA53,RA20,RA21,RA54,RA58,RA69,RA73,RA74,RA2,RA83,RA57,RA82,RA60 on MAB	14
02456878	EXB2HV220JV	RESISTOR-ARRAY	RA16,RA17,RA76,RA72,RA3,RA5,RA7,RA104,RA10,RA8 on MAB	10
02678534	EXB2HV103V	RESISTOR-ARRAY	RA67,RA68 on MAB	2
02781623	EXB2HV101JV	RESISTOR-ARRAY	RA84,RA55,RA70,RA81,RA85,RA202,RA201,RA80 on MAB	8
03015056	EXB2HV470JV	RESISTOR-ARRAY	RA77,RA14,RA56,RA61,RA75,RA52,RA203,RA78,RA71 on MAB	9
15409113	EXBV8V103JV	RESISTOR ARRAY	RA18,RA100,RA204,RA65,RA22,RA15 on MAB	6

POTENTIOMETER

01230034	EVJ Y15 F01 B14	12M/M ROTARY POTENTIOMETER	VR1,VR3,VR2 PAB	3
13339467	EWA-NFEX10B14 10KB	POTENTIOMETER(SLIDE)	VR9,VR6,VR8,VR7,VR5,VR4 PAB	6

CAPACITOR

00567945	GRM39B103K50PT	CERAMIC CAPACITOR	C350,C326,C117,C105,C351 on MAB ,C190,C193,C192,C191,C187,C194,C195,C196,C197,C198,C4,C188,C189 TRB	13 +5
01675278	GRM39CH101J50PT	CERAMIC CAPACITOR	C132,C119,C101,C106,C107,C130,C27,C111 JAB	25 +8 +2 8
			,C624,C703,C702,C701,C637,C636,C635,C634,C633,C343,C344,C417,C346,C416,C440,C439,C419,C347,C348,C418,C800,C362,C364,C365,C414,C415,C345,C361 on MAB ,C1L,C79,C78,C69,C66,C63,C1R,C1P,C81,C1K,C1M,C1S,C82,C1N,C57,C7T,C7S,C7P,C7M,C7L,C7K,C7J,C1T,C83,C1J TRB	

CAPACITOR					
00568789	ECJ1VF1C224Z	CERAMIC CAPACITOR	C12P,C8L,C8P,C8T,C71,C64,C8J,C12S,C6L, C12M,C12J,C12K,C12T,C6S,C6N,C2J,C2K, C2L,C2M,C2N,C2P,C2R,C2S,C2T,C6K,C6M ,C8S,C8M,C8K,C6T,C6R,C6P,C12L,C6J TRB	34	
01674167	ECUV1H100DCV	CERAMIC CAPACITOR	C70,C77 TRB	2	
01674212	ECJ1VC1H220J	CERAMIC CAPACITOR	C105,C131 JAB ,C158,C143,C176,C138,C147,C165 on MAB ,C11J,C9S,C9P,C9M,C9L,C9K,C11T,C11S,C 11M,C9T,C11K,C11P,C10T,C10S,C10P,C10 M,C4J,C3S,C3P,C3M,C3K,C3L ,C3J,C4K,C3N,C11L,C3T,C10J,C9J,C5T,C5S, C5R,C5P,C5N,C5M,C5L,C10L,C5J,C4T,C4S, C4R,C4P,C4N,C4M,C4L,C3R,C10K,C5K TRB	48 +2 +6	
01674701	ECJ1VF1E104Z 0.1UF/16VK	CERAMIC CAPACITOR	C138,C147,C146,C137,C150,C136,C139,C14 9,C144,C152,C155,C153,C151,C145,C148,C1 40 JAB,C226,C218,C219,C220,C221,C217,C229, C225 LCB, C280,C618,C281,C283,C215,C284,C285,C28 6,C287,C288,C289,C290,C282,C196,C517,C2 91,C185,C643,C700,C217,C192,C279,C199,C 202,C620,C206,C210,C216,C275,C276,C190, C512,C292,C506,C507,C508,C509,C504,C51 1,C503,C513,C514,C515,C516,C393,C302,C3 91,C510,C435,C53,C429 ,C428,C430,C431,C505,C433,C390,C441,C44 2,C443,C444,C445,C500,C501,C502,C432,C2 97,C392,C307,C305,C304,C300,C325,C298,C 335,C296,C295,C294,C600,C606,C607,C293, C299,C376,C388,C387,C386,C385,C384,C32 3,C377,C389,C375,C373,C371,C369,C368,C3 67,C349,C336,C381,C58,C35,C123,C37,C38, C41,C51,C54,C19,C57,C32,C59,C60,C61,C69 ,C71, C74,C78,C80,C95,C56,C20,C3,C4,C6,C9,C13 ,C14,C55,C36,C183,C31,C21,C22,C23,C24,C 25,C26,C27,C29,C30,C15,C162,C137,C140,C 167,C134,C148,C135,C156,C146,C163,C166, C170,C171,C174,C175,C178,C180,C153 on MAB, C3,C5,C6,C7,C8,C11,C10,C28,C9,C33,C32,C 31,C12,C29,C27,C26,C25,C24,C23,C22,C14, C1,C30 PAB ,C200,C201,C202,C199,C14P,C13M,C204,C2 03,C76,C74,C14T,C13K,C13N,C13P,C13L,C 13T,C13R,C216,C14J,C14M,C13S,C215,C214 ,C213,C212,C211,C206,C205,C145,C14R,C14 N,C14L,C14K,C209,C13J TRB?	35 +8 +1 6 +2 3 +1 61	
02345101	RV2-16V100M-R	CHEMICAL CAPACITOR	C141 JAB,C227 LCB,C152,C144,C141,C159,C139,C164,C101 ,C168,C169,C172,C177,C211,C277,C161,C63 ,C1,C7,C8,C10,C16,C28,C40,C119,C62,C136, C79 ,C88,C92,C113,C94,C122,C125,C126,C132,C 133,C50,C427,C278,C301,C642,C619,C610,C 401,C333,C394,C402,C334 on MAB,C4,C2,C15,C13 PAB,C210,C208,C207 TRB	3 +1 +1 +4 +4 7	
02345067	RV2-25V4R7M-R	CHEMICAL CAPACITOR	C222,C223,C224 LCB,C120 on MAB	3 +1	
02129534	ECJ1VB1H102K	CERAMIC CAPACITOR	C117,C125,C123,C135,C115 JAB ,C422,C519,C615,C518,C614,C324,C261,C60 1,C52,C5,C18 on MAB	5 +1 1	
01784123	ECHU1H471JX5	POLYEST. CAPACITOR	C128,C112,C102,C120 JAB ,C99,C111 on MAB	4 +2	
01899223	ECHU1H102JX5	POLYEST. CAPACITOR	C103,C121,C113,C129 JAB	4	
02345134	RV2-16V470M-R	CHEMICAL CAPACITOR	C124,C109,C134,C126,C118,C122,C143,C11 0,C142,C116,C108,C133 JAB	12	
01674190	ECJ1VC1H150J	CERAMIC CAPACITOR	C100,C604,C605,C602,C363,C112,C603 on MAB	7	
01674234	ECJ1VC1H330J	CERAMIC CAPACITOR	C12,C11 on MAB	2	
01674512	ECJ1VB1H222K	CERAMIC CAPACITOR	C303 on MAB	1	
01674712	ECJ1VF1A105Z	CERAMIC CAPACITOR	C33 on MAB	1	
01898423	ECHU1H222JX5	POLYEST. CAPACITOR	C103,C116 on MAB	2	
02345145	RV2-16V101M-R	CHEMICAL CAPACITOR	C109,C115,C184,C118,C102,C181 on MAB	6	
03343034	EEE0JA221WP	CHEMICAL CAPACITOR	C609,C608 on MAB	2	

INDUCTOR, COIL, FILTER					
	01565578	N1608Z601T01	FERRITE-BEAD	L105,L107,L108,L109,L101,L104,L103,L106, L110,L102 JAB ,L104,L103,L105 on MAB ,L25,L42,L41,L40,L30,L29,L28,L27,L37,L43, L24,L23,L21,L19,L17,L15,L13,L12,L26,L38,L 11,L14,L16,L18,L20,L35,L39,L44,L36,L34,L3 3,L32,L31,L48,L47,L46,L45,L22 TRB	38 +1 0 +3
	02891034	N2012ZP121T	FERRITE-BEAD	L2,L1,L3 on MAB	3
CRYSTAL, RESONATOR					
	02673267	CX-49G 5MHZ	CRYSTAL	X1 on MAB	1
	02672401	SG-8002JC 67.7376MHZ PC	CRYSTAL	X2 on MAB	1
ENCODER					
	01905467	EVE GC1 F20 24B	ROTARY ENCODER	EN1 PAB	1
CONNECTOR					
	03126090	40FMN-SMT-A-TF	CONNECTOR	CN2 PAB,CN6 TRB	1 +1
	03346956	52746-1690	CONNECTOR	CN204 LCB	1
	03346967	52437-2491	CONNECTOR	CN203 LCB	1
	03349290	10FMN-BMT-A-TFT	CONNECTOR	CN205 LCB,CN37 on MAB	1 +1
	02454245	28FMN-SMT-TF	CONNECTOR	CN101 JAB	1
	02670912	26FMN-SMT-TF	CONNECTOR	CN1 PAB	1
	02906545	CONNECTOR B7B-PH-SM3-TB	CONNECTOR	CN6 on MAB	1
	03349301	26FMN-BMT-A-TFT	CONNECTOR	CN40 on MAB	1
	03349312	28FMN-BMT-A-TFT	CONNECTOR	CN38 on MAB	1
	03349345	40FMN-BMT-A-TFT	CONNECTOR	CN41,CN20 on MAB	2
WIRING, CABLE					
	03453512	WIRING W1			1
	02789112	BAN CARD	BNCD-P=1.00-K-10-100		1
	03453667	BAN CARD	BNCD-P=1.00-K-28-50		1
	03453723	BAN CARD	BNCD-P=1.00-K-40-60		1
	02670889	BAN CARD	BNCD-P=1.00-K-26-80		1
#	03891834	BAN CARD	BNCD-P=1.00-K-40-180		1
SCREW					
	40010345	SCREW M4X10	BINDING MACHINE FE BZC		1
	40238145	SCREW M5X12	TRUSS BZC		4
#	40569934	SCREW M3X6 SPW NI	HEX SOCKET SPW NI		5
	40011090	SCREW 3X6	BINDING TAPTITE B BZC		22 +1 0
	40011123	SCREW 4X8	BINDING TAPTITE B BZC		2
	40011023	SCREW M3X8 PAN B-TITE FECM			4
	40011312	SCREW 3X8	BINDING TAPTITE P BZC		2 +3
	40011490	SCREW M3X6	PAN MACHINE W/SW BZC		6
	40011745	HEX NUT M4	SPRING NUT FE ZC		1
PACKING					
#	03895101	UPPER PAD			1
#	03895112	LOWER PAD			1
#	03895134	PACKING CASE			1
MISCELLANEOUS					
△	02567234	LITHIUM BATTERY	CR2032		1
	40232123	ACETATE TAPE	NITTO #5 BLACK W20MM 30M 20P		13
△	02894367	INSULATING COVER	DA-2496 SW-PS		1
#	03895156	DISPLAY CUSHION			1
	01235378	FOOT			4
#	03891901	PANEL SHEET			1
△	03902767	INSULATING SHEET			1
	12199584	GROUNDING TERMINAL	M1698	TER103,TER102,TER101 JAB ,TER4,TER5,TER6 TRB	3 +3
	40122490	DOUBLE-FACED TAPE	#500 W5MM 20M 40P		15
△	02567267	BATRY HOLDER	BCR20H4	BT2 on MAB	1

ACCESSORIES (STANDARD)

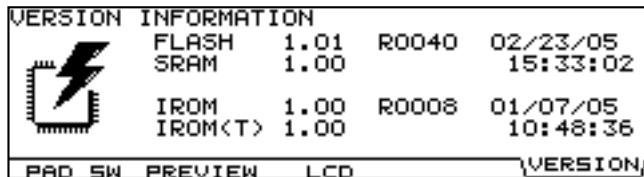
△	03340956	AC CORD SET	100V YA-101 /YP-3NB	1
△	00894378	AC CORD SET	120V SP301+IS14 SJT18/3	1
△	00894389	AC CORD SET	230V SP22+IS14 H05VV-F3G1.0	1
△	00907001	AC CORD SET	240VE KP-610 GTTBS-3 KS-31A	1
△	23495124	AC CORD SET	240VA SC-144-JO1 ES303-10HMA	1
#	72903267	OWNER'S MANUAL	JAPANESE	1
#	72908223	OWNER'S MANUAL	ENGLISH	1
	40232334	WARRANTY CARD	MOCHIKOMI JAPAN ONLY	1

CHECKING THE VERSION NUMBER

1. Simultaneously hold down the [MIXER], [AMBIENCE], and [KIT] buttons and turn on the power.
2. Press the [SETUP] button after start up, and the following appears in the LCD display.



3. Next, press the [F3] button, and press the [F5] button in addition, the version number appears in the screen.



FLASH: Program version number

SRAM: Version number for initial SRAM settings values.

IROM: MAIN CPU version number

IROM(T): TRIG CPU version number

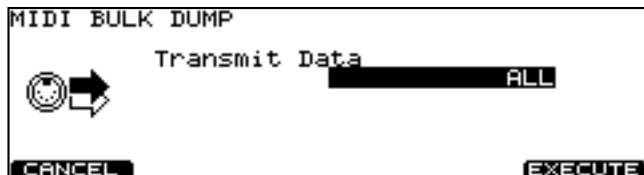
4. Under normal circumstances, confirm only the program version number. Turn off the power to the unit after confirming the information.

USERS DATA SAVE AND LOAD

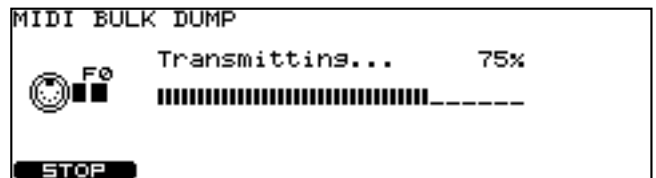
Saving Data

To save data, use the external sequencer as you would when recording musical data, and perform the following steps the TD-12 as shown in the following diagram.

1. Connect the TD-12's MIDI OUT connector with MIDI cable to the MIDI IN connector of the external sequencer.
2. Press [SETUP].
[SETUP] lights, and the "SETUP" screen appears.
3. Press [F1 (MIDI)] - [F5 (BULK)].
The "MIDI BULK DUMP" screen appears.



4. Press [+/-], [VALUE], and [CURSOR (up/down)] to select the content to be sent.
5. Start the recording process of the external sequencer.
6. Press [F5 (EXECUTE)] to begin sending the data.



* If you want to stop sending, press [F1 (STOP)].

7. When finished, the following screen appears.



NOTE

Bulk Dump is one kind of System Exclusive message. Be sure to use an external MIDI sequencer that is capable of recording System Exclusive messages. In addition, confirm that the sequencer is not set to "Do not receive System Exclusive messages."

Loading Data to the TD-12

NOTE

At this time, all the TD-12's current data is overwritten. Make sure you have made the needed backup.

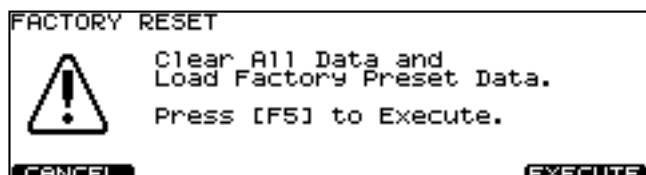
1. Connect the TD-12's MIDI IN connector with a MIDI cable to the MIDI OUT connector of the external sequencer.
2. Press "PLAY" on the external sequencer to transmit the data to the TD-12.
Received data is written into the TD-12.

FACTORY RESET INSTRUCTIONS

1. Press the [SETUP] button; the following appears in the LCD display.



2. Press the [F5] button twice; the following appears in the LCD display.



3. To execute the Factory Reset, press the [F5 EXECUTE] button. Factory Reset is executed.
To cancel Factory Reset, press the [F1 CANCEL] button.
When Factory Reset is finished, "Completed!" temporarily appears, the LCD display returns to its original state, and the procedure is completed.

Caution as to USER DATA

All data and settings stored in the TD-12 are lost in carrying out this operation. So if necessary, save your data to an external MIDI device before executing the factory reset.

(Bulk Dump; [SETUP] - [F1 (MIDI)] - [F5 (BULK)])

SYSTEM SOFTWARE UPDATING INSTRUCTIONS

The TD-12 uses flash memory for the program ROM; update the system using either of the two following methods.

1. Updating with Compact Flash Using the TD-20(Recommended)

(Time Required for Procedure): Approximately 5 minutes

2. Updating with MIDI Using a MII Sequencer

(Time Required for Procedure): Approximately 1 hour

1. Updating with Compact Flash Using the TD-20



Cards supported by TD-20 are 3.3 V CompactFlash cards with the capacity of 16 MB to 512 MB.

Required Equipment

- TD-20 (T-20 Program Version 1.07 and over)
- UPDATE DATA FOR SERVICE CD-ROM (#17041621)
- PC (Do not use a Macintosh)
- Compact Flash x2
- Compact Flash Reader and Writer

Caution as to USER DATA



After updating, be sure to perform the "Factory Reset".

If important user data is to be overwritten, save the data (refer to Saving and Loading User Data) before carrying out the update.

Create an Update Card

Create an update card for use by the TD-20.

1. Turn on the power to the PC.
2. Insert a Compact Flash in a Compact Flash reader/writer connected to the computer, and format the card.
3. Place the UPDATE CD-ROM in the computer, and bring up the "CF" folder on the CD-ROM.
4. Copy all of the files from "CF" on to the Compact Flash card.

procedure for Updating

1. Connect the MIDI OUT of TD-20 and MIDI IN of TD-12 with MIDI Cable
2. Turn on the power TD-12 while holding down the [F2] and [F5] button and turn on the power TD-12.
Press the [SETUP] button during RIM LED light(2 second) up and RIM LED began blinking.
** When you can not enter the Update mode, TD-12 start-up normal mode.*
3. Press the [TRIGGER] button and PLAY LED blinking and TD-12 is waiting to receiving data.
4. Insert the Compact Flash you copied the Update data in TD-20.
5. Turn on the power TD-20 while holding down [SETUP], [MIXER] and [INST], LCD display appear the followings.

```
Bin file transmitter
```

```
Tx ready. [KIT]=TX start.
```

```
Ver:1.01  
Rel:0040  
Sum:2B5B
```

6. When Press [KIT] button, TD-20 start the UPDATE.
The TD-12 LEDs light the following order.
[PLAY] -> [REC] -> [CLICK] -> [CHAIN] -> [SETUP] -> [RIGGER] -> [KIT]
7. When LED of [KIT] lights, Update is completed.
State of each LED
PLAY : Waiting the reception
REC : Under receiving data
CLICK : Under checksumming receiving buffer
CHAIN : Under easing all Flash memory data
SETUP : Under writing Flash memory data
TRIGGER : uncdcr checksumming Flash memory data
KIT : Complete the Update
PATTERN : Error occurs
8. Please do TEST mode after turning off and on the TD-12.

Measures against system update failure



If the update failed, perform it once again from step 1.

2. Updating with MIDI

Required Equipment

- UPDATE DATA FOR SERVICE CD-ROM (#17041621)
- Sequencer capable of playing back SMF data
- Media that can be used with the above sequencer (1 Zip disk, 4 floppy disks, or equivalent)
- PC (Do not use a Macintosh)
- MIDI cable

Caution as to USER DATA



After updating, be sure to perform the "Factory Reset".
If important user data is to be overwritten, save the data (refer to Saving and Loading User Data) before carrying out the update.

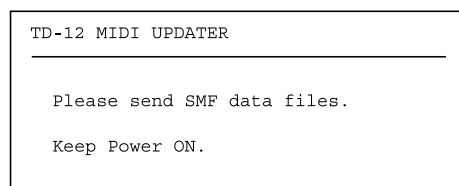
Create the Update Disk or Disks

This creates one or more disks for loading SMF data to the sequencer.

1. Turn on the power to the PC.
2. Insert a Zip disk or floppy disk.
3. Place the UPDATE CD-ROM (#17041621) in the computer, and bring up the "MIDI" folder on the CD-ROM.
4. * If using a Zip disk
Copy all 64 SMF data files (from p00001.mid to p00064.mid) from "MIDI."
* *If using floppy disks*
Copy the 64 SMF data files in "MIDI" to the floppy disks in order of the file names, copying 16 SMF data files at a time to each of the 4 floppy disks.
Disc 1 : p0001.mid -- p0016.mid
Disc 2 : p0017.mid -- p0032.mid
Disc 3 : p0033.mid -- p0048.mid
Disc 4 : p0049.mid -- p0064.mid

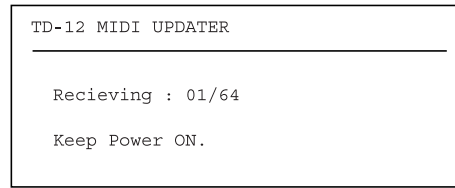
Process of Updating the TD-12

1. Use a MIDI cable to connect the sequencer's MIDI OUT to the TD-12' MIDI IN.
2. Insert the newly created SMF data disk in the sequencer.
3. Simultaneously hold down the TD-12's [SETUP] and [REC] buttons and turn on the power to the TD-12.
4. The following screen appears in the LCD display.
TD-12 MIDI Updater

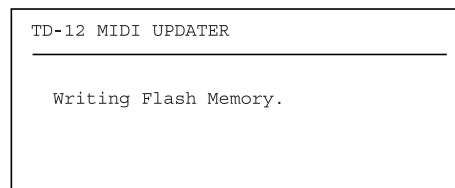


5. After confirming that the sequencer playback mode is not set to loop playback, play back the data in order of the file names to transmit the data.

If using floppy disks, play back Disk 1 until the data is transmitted, then insert Disk 2 and play back the data on that disk, then follow this process with Disk 3 then Disk 4 until all of the data has been transmitted.
The following screen appears in the TD-12's LCD display during reception of MIDI data.



6. When transmission of all 64 SMF data files is completed, the TD-12 automatically starts writing the data to the internal flash memory.
The following screen appears in the TD-12's LCD display while the data is being written.



Be absolutely sure not to turn off the power at this time.
If this operation does not finish properly, subsequent MIDI updating will not be possible.

If this occurs, carry out the update with Compact Flash using the TD-20.

7. When writing of the data to the flash memory is completed, the unit restarts automatically.
8. Turn the power to the TD-12 off and then on again to carry out Test mode.

Measures against system update failure



If this occurs, carry out the update with Compact Flash using the TD-20.

TEST MODE

Caution as to USER DATA

NOTE

The contents of the user memory are deleted upon entering Test mode. Be sure to have backed up the user memory using the prescribed save procedures before entering Test mode. After finishing Test mode, be sure complete the procedures by performing the "Factory Reset."

Items Required

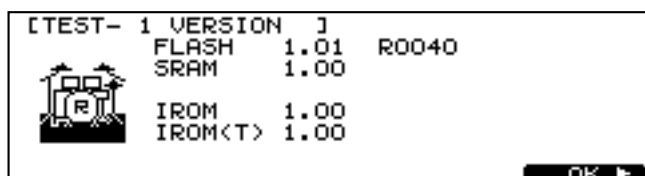
- FD-7
- Stereo cable (for FD-7)
- PD-7
- PAD cable (stereo type)
- Drum stick
- MIDI cable
- PCS-31 cable
- Headphones
- Monitor speakers x2

Entering Test Mode

1. Simultaneously hold down the [PATTERN], [PLAY], and [TEMPO] buttons and turn on the power.
2. When the "Roland" logo appears in the LCD display during startup, release the pressed buttons and then press the [+] button.



3. Test mode starts up, and the following appears in the LCD display.

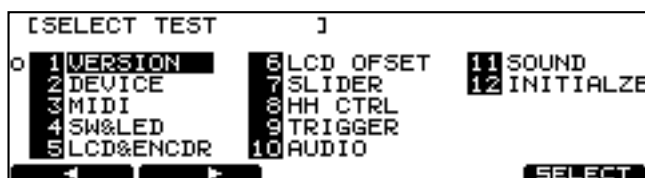


Exiting Test Mode

It is possible to quit Test mode at any stage by switching off the power. However, always complete the procedure by performing the Factory Reset.

Skipping

To skip to the next test category: hold down the [SHIFT] button and press the [F5] or [+] button
 To jump to the previous test category: hold down [SHIFT] button and press the [F4] or [-] button
 To skip to a specific test category: hold down the [SHIFT] button and press the [EXIT] button to shift to the SELECT screen.
 Use the cursor to select the category, then press the [F5 SELECT] button.



A circle appears to the left of completed test categories.

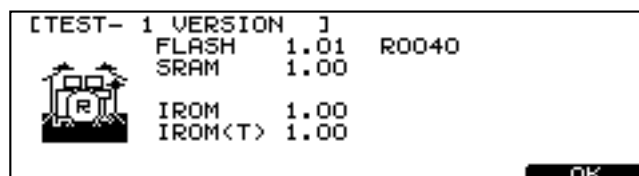
Test Items

1. Version Display [TEST - 1 VERSION]
2. Device Test [TEST - 2 DEVICE]
3. MIDI Test [TEST - 3 MIDI]
4. SW/LED Test [TEST - 4 SW&LED]
5. LCD/ENCODER Test [TEST - 5 LCD&ENCDR]
6. LCD OFFSET Test [TEST - 6 LCD OFFSET]
7. SLIDER Test [TEST - 7 SLIDER]
8. HH CTRL Test [TEST - 8 HH CTRL]
9. TRIGGER Test [TEST - 9 TRIGGER]
10. AUDIO IN/OUT Test [TEST - 10 AUDIO]
11. Sound Test [TEST-11 SOUND]
12. FACTORY RESET [TEST-12 INITIALZE]

Detailed Tests

1. Version Display [TEST - 1 VERSION]

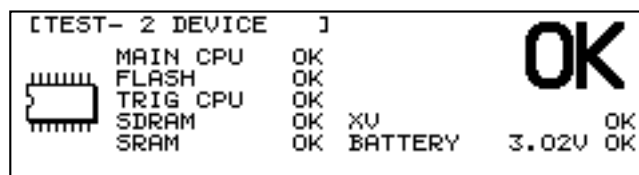
1. This checks the software version



- FLASH: Program version number
 - SRAM: Version number for initial SRAM settings values.
 - IROM: MAIN CPU version number
 - IROM(T): TRIG CPU version number
2. Under normal circumstances, confirm only the program version number. Press the [F5 (OK)] button to advance to the next test

2. Device Test [TEST - 2 DEVICE]

1. This test is performed automatically.
 The determination of "OK" or "NG" (no good, i.e. fail) appears to the right of each test category; if all checks are OK, the procedure automatically advances to the next test.



Test Categories

- MAIN CPU: Checksum check
 - FLASH: Checksum check
 - TRIG CPU: Checksum check
 - SDRAM: Confirms reading/writing
 - SRAM: Confirms reading/writing
 - XV: Confirms reading/writing of WAVE ROM, DSP RAM, DRAM
 - BATTERY: Battery voltage check
2. If even one check fails, the procedure does not advance to the next test; press the [F3 RETRY] button to carry out the test again.

3. MIDI Test [TEST - 3 MIDI]

1. When a MIDI cable is connecting the MIDI IN and MIDI OUT connectors, signals are detected, and the following appears in the LCD display (ONLINE OK).

Before Connecting



After Connecting

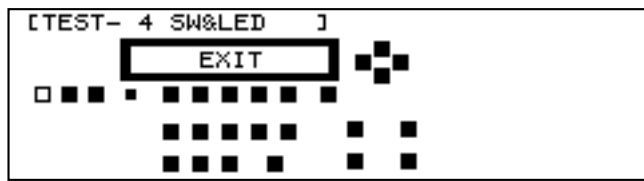


2. Disconnect the MIDI cable and confirm the signal is off (OFF-LINE OK); the procedure automatically advances to the next test.

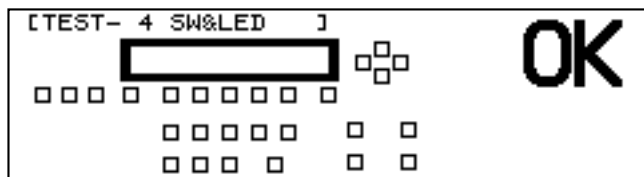
4. SW/LED Test [TEST - 4 SW&LED]

1. Press each panel switch one at a time; confirm that the switch name and position appears in the display, and the corresponding sound plays. Also confirm that the corresponding light goes off.

Example of the [EXIT] button being pressed



LEDs with no corresponding switches are turned off with the following switches.
 TRIGGER LEDs: Turned off lights in red, green the order, by pressing the [F1] button
 Left column of seven-segment LED: The dots are turned off one by one by pressing the [F2] button
 Center column of seven-segment LED: All of the dots go off simultaneously by pressing the [F3] button
 Right column of seven-segment LED: All dots go off simultaneously by pressing the [F4] button
 GROUP FADERS Upper LEDs: Turned off by the [+] button
 GROUP FADERS Lower LEDs: Turned off by the [-] button



2. If all tests result in "OK," the procedure automatically advances to the next test category.

NOTE

If two or more switches are pressed simultaneously, the test is cancelled.

5. LCD/ENCODER Test [TEST - 5 LCD&ENCDR]

1. Slowly rotate the [VALUE] dial to the right.
2. Confirm that the arrow in the middle of the LCD display moves slowly to the right, while the screen contrast darkens.
3. When the meter is rotated fully to the right, "RIGHT!" appears in the display, and then changes to "OK!"
4. Next, slowly rotate the [VALUE] dial to the left.

5. Confirm that the arrow in the middle of the LCD display moves slowly to the left, while the screen contrast lightens.
6. When the meter is rotated fully to the left, "LEFT!" appears in the display, and then changes to "OK!"

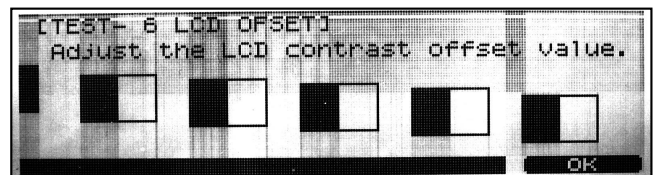


7. Next, press the [F1(DARK)] button. Confirm all dots in the LCD are lit.
8. Next, press the [F1(BRIGHT)] button. Confirm all dots in the LCD go off.
9. Press the [F5(OK)] button to advance to the next test.

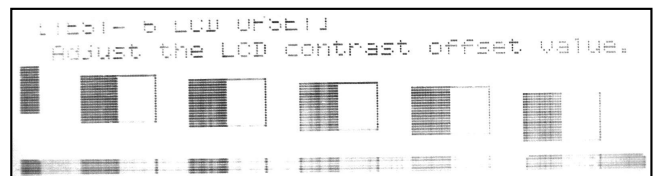
6. LCD/OFFSET Test [TEST - 6 OFFSET]

When the display of the LCD is thick or thin, please rotate the [VALUE] dial for OFFSET of LCD is adjusted.

LCD is thick.

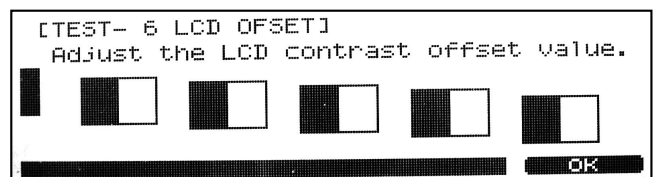


LCD is thin.



Rotate the [VALUE] dial, and adjust it in the state to see the display easily.

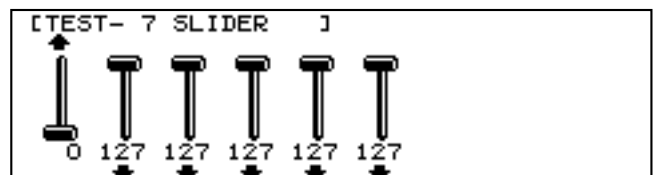
1. Rotate the [VALUE] dial, and adjust it in the state to see the display easily.



2. Press the [F5(OK)] button to advance to the next test.

7. SLIDER Test [TEST - 7 SLIDER]

1. Move each GROUP FADER up and down one at a time.
2. Confirm that when the FADER is all the way up, the corresponding value in the LCD is "127," and when the FADER is all the way down, the corresponding value in the LCD is "0." Also confirm that this is accompanied by the corresponding pitch changes.



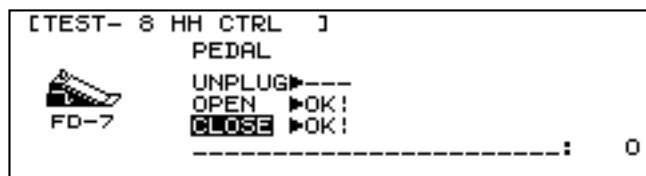
3. When all FADER changes are detected, the procedure automatically

advances to the next test.

8. HH CTRL Test [TEST - 8 HH CTRL]

1. Connect a FD-7 to the HH CTRL INPUT with a stereo cable.
2. Gradually press the FD-7 down and confirm that the meter in the LCD gradually decreases, with the meter at "0" when the pedal is fully pressed down.

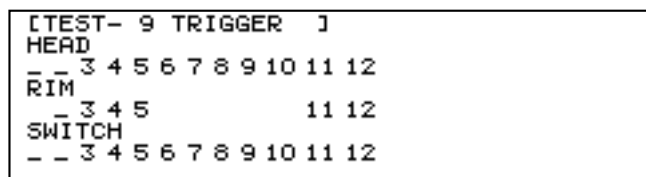
Here, the following appears in the LCD display.



3. Release the FD-7, and disconnect the cable from the HH CTRL INPUT; the procedure automatically advances to the next test.

9. TRIGGER Test [TEST - 9 TRIGGER]

1. Connect a PD-7 to each TRIGGER INPUT with a pad cable and confirm the following tests.
 - Strike the PD-7 head. The corresponding numerals in the HEAD row in the LCD change to "-". A high pitch is generated simultaneously.
 - Strike the PD-7 rim. The corresponding numerals in the RIM row in the LCD change to "-". A normal pitch is generated simultaneously (INPUT 2--5 and 11--12 only).
 - Choke the PD-7 rim. The corresponding numerals in the SWITCH row in the LCD change to "-". A low pitch is generated simultaneously.

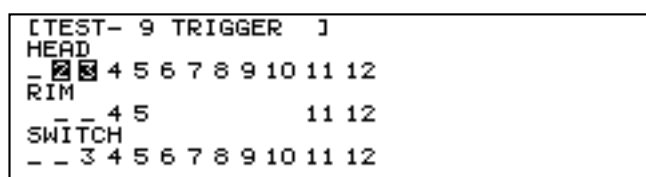


NOTE

The numerals may change to "-" when the plug is connected. If this occurs, confirm that the corresponding numbers are displayed momentarily when the pad is struck or choked.

NOTE

If two or more inputs respond, the following highlighted numerals appear in the LCD.



2. After confirming all inputs, press the [F5(OK)]; the procedure automatically advances to the next test.

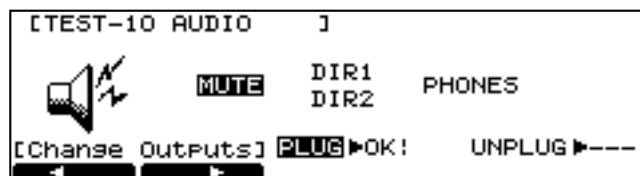
10. AUDIO IN/OUT Test [TEST - 10 AUDIO]

NOTE

Be careful with volume levels.

1. Connect the white and red plugs of the PCS-31 cable to DIRECT OUT 1 and DIRECT OUT 2, and connect the black plug to MIX IN.
2. Connect MASTER OUT to the monitor.
3. Connect a pair of headphones to the PHONES jack.
4. Turn all the volumes for MIX IN, PHONES, and MASTER to the right.

5. The LCD display shows that MUTE is selected, as shown below. Confirm that sound is being output from MASTER OUT and PHONES.



6. Press the [F2 (->)] button. Confirm that "DIR1" and "DIR2" are selected in the LCD display and that a sine wave is being output only from MASTER OUT L and R.
7. Press the [F2 (->)] button. Confirm that "PHONES" is selected in the LCD display and that a sine wave is being output only from PHONES.
8. Disconnect the plug from MIX IN. The procedure automatically advances to the next test.

Signal Path

DIR 1 ---> MIX_IN Lch ---> MASTER Lch
 DIR 2 ---> MIX_IN Rch ---> MASTER Rch
 This path is confirmed simultaneously.

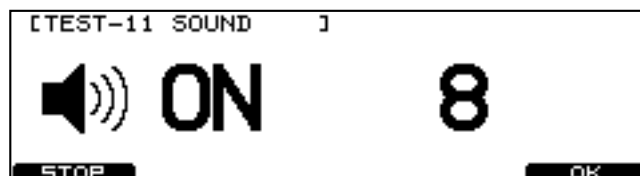
11. Sound Test [TEST-11 SOUND]

1. Confirm that sound is played (sound of hand striking). "OFF" appears in the LCD display.
2. Press the [F1(PLAY)] button. The LCD display changes to "ON" and a numeral "1-8."
3. The volume gradually decreases as the number changes. Confirm that each sound plays correctly.

NOTE

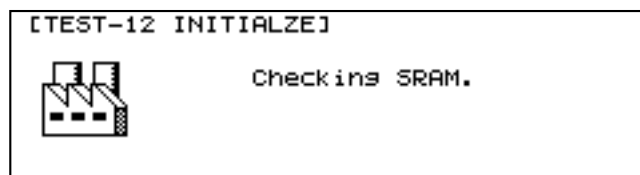
The sound with noise and short sounds, it is failure.

4. After confirmation is completed, press the [F5(OK)] button to advance to the next test.

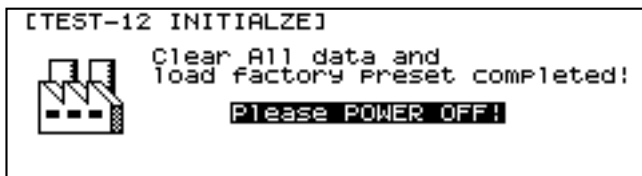


12. FACTORY RESET [TEST-12 INITIALZE]

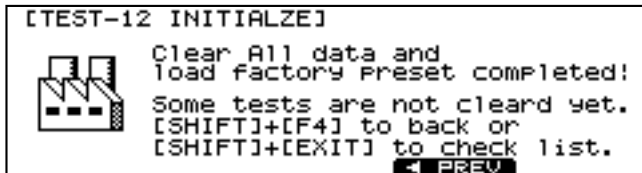
1. This performs an SRAM read/write test and Factory Reset.
2. Press the [F1(EXECUTE)] button to start the SRAM test.



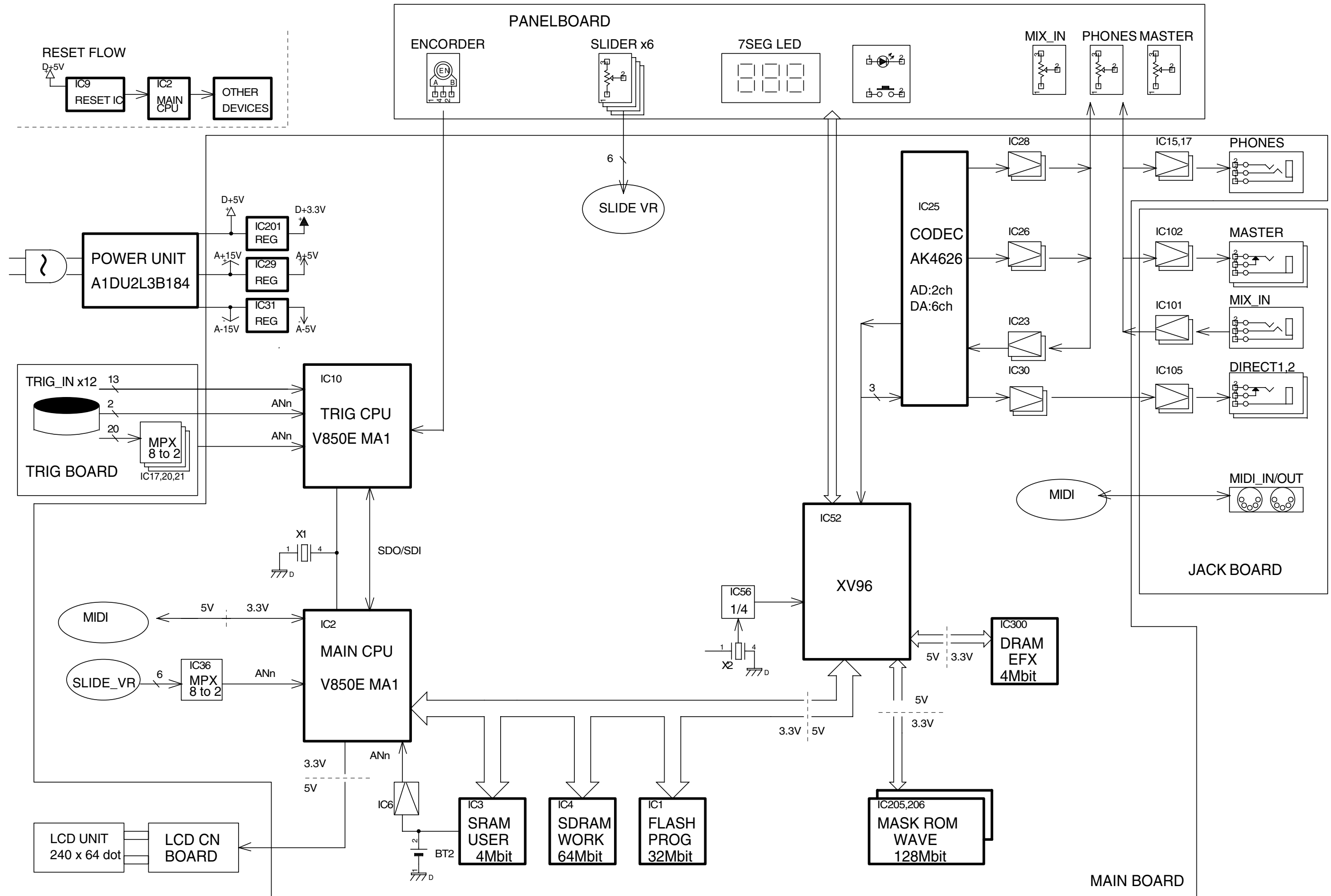
3. If the SRAM test results in OK, Factory Reset is then executed. If the SRAM test results in failure (NG), "SRAM NG!" appears in the display, and the procedure does not advance to the Factory Reset.
4. When Factory Reset is completed, the following appears in the LCD display.
5. This completes the test; turn off the power to the unit.



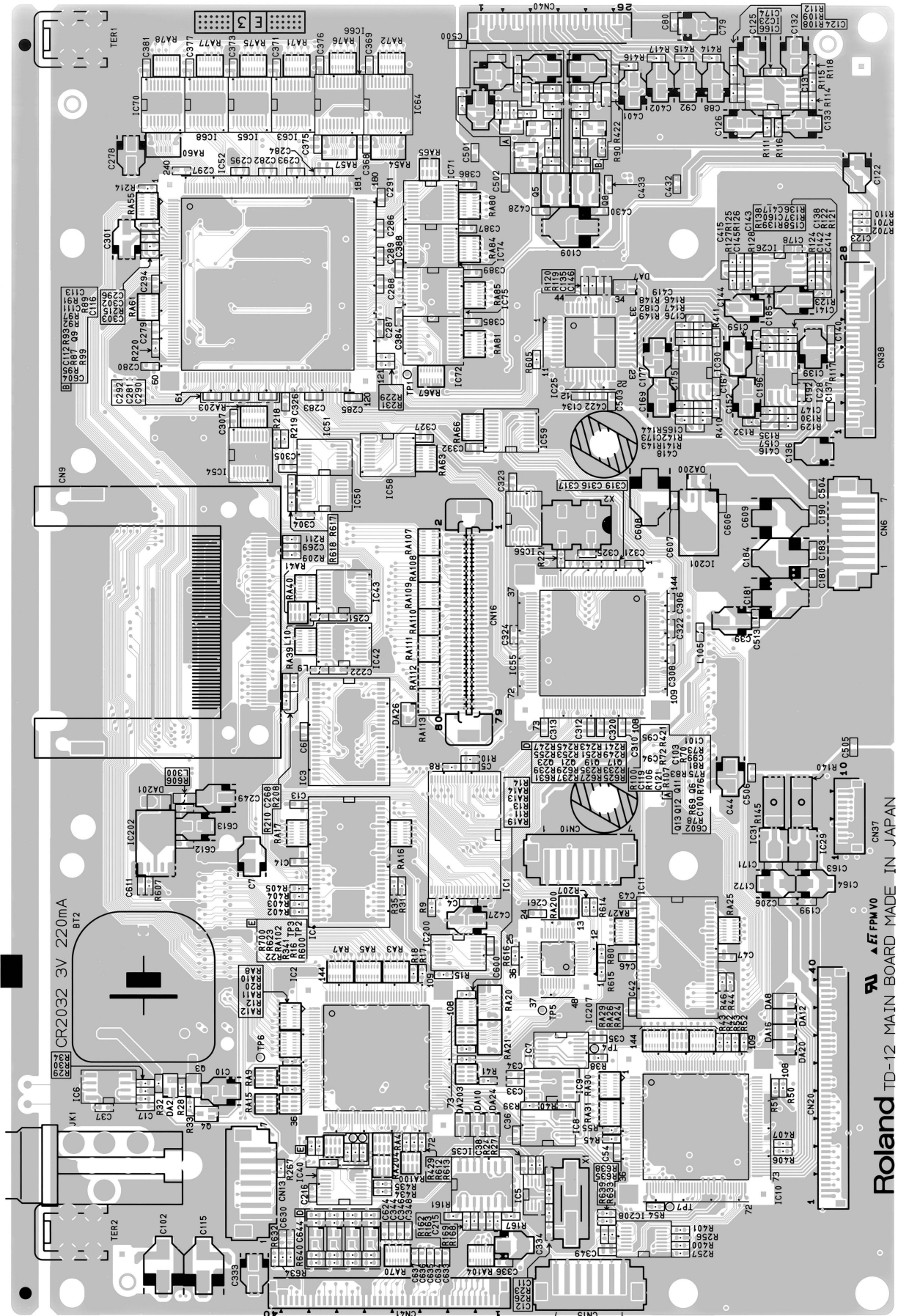
6. If any test has not been performed (including test failures), the following appears in the LCD display (a message indicating that not all tests have been cleared).
After confirming the message, turn off the power to the unit to quit the tests. (In this case, the "Factory Reset" is executed.)



BLOCK DIAGRAM



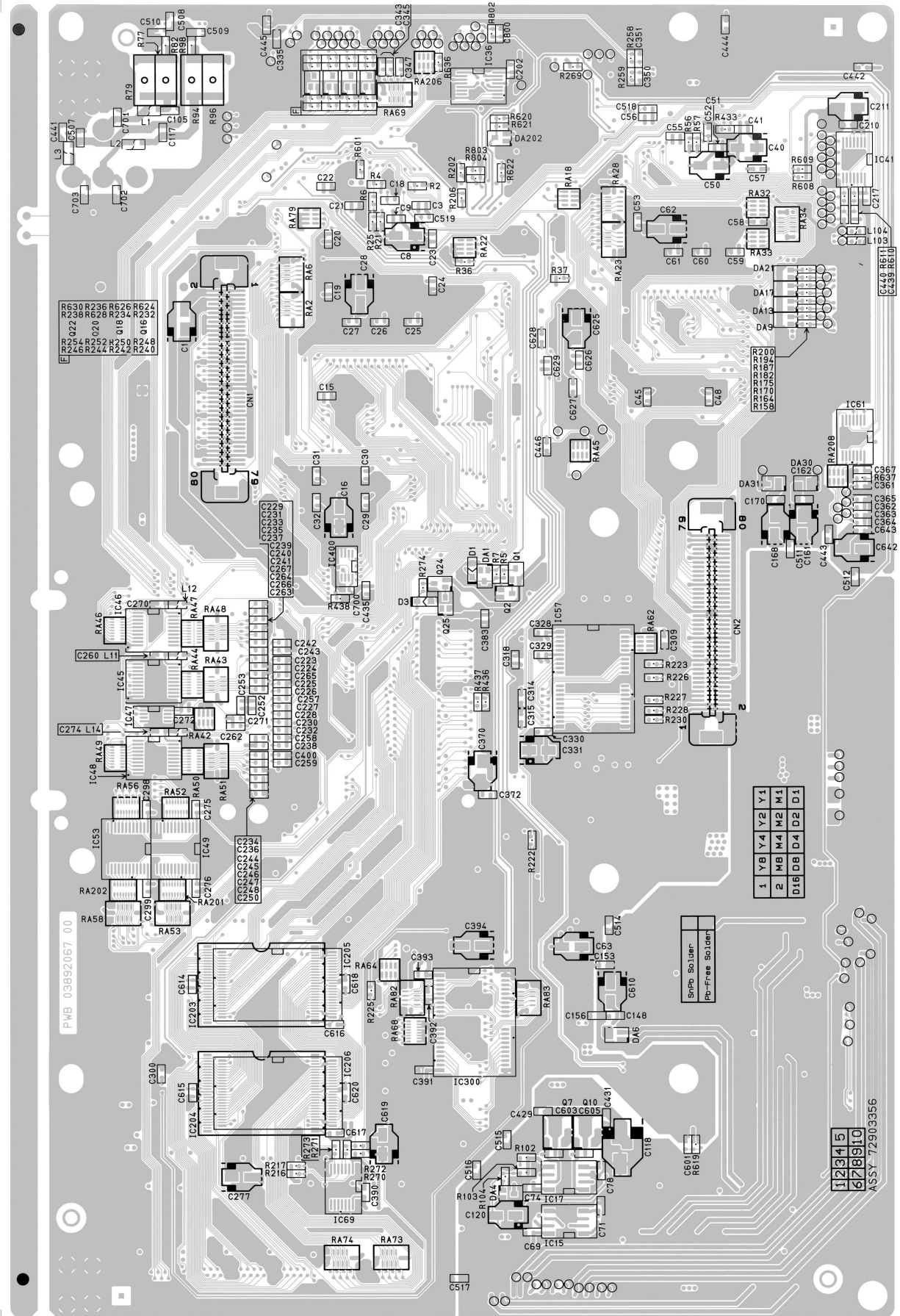
CIRCUIT BOARD(MAIN)



Roland TD-12 MAIN BOARD MADE IN JAPAN



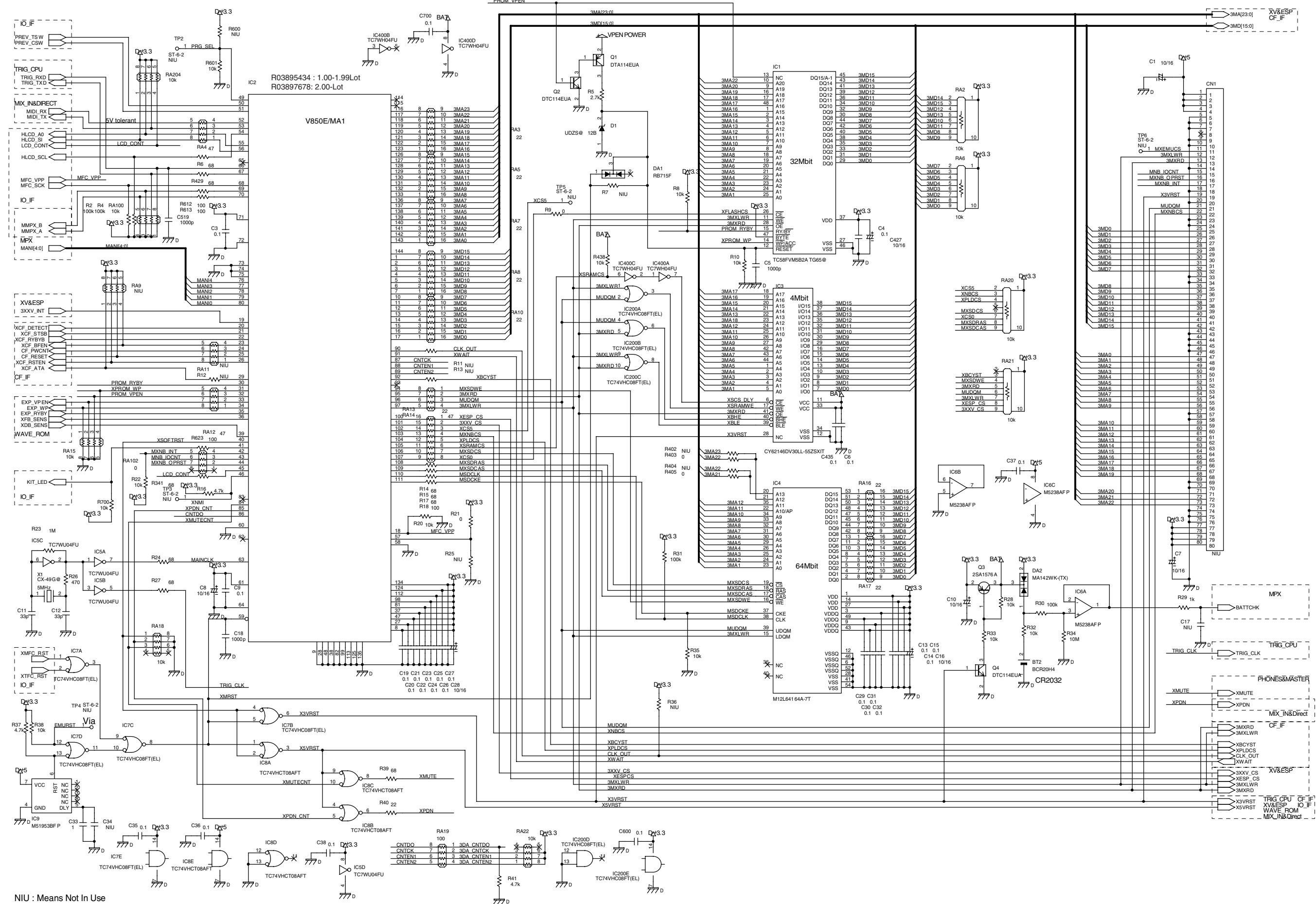
View from components side



View from foil side

CIRCUIT DIAGRAM(MAIN 1/9)

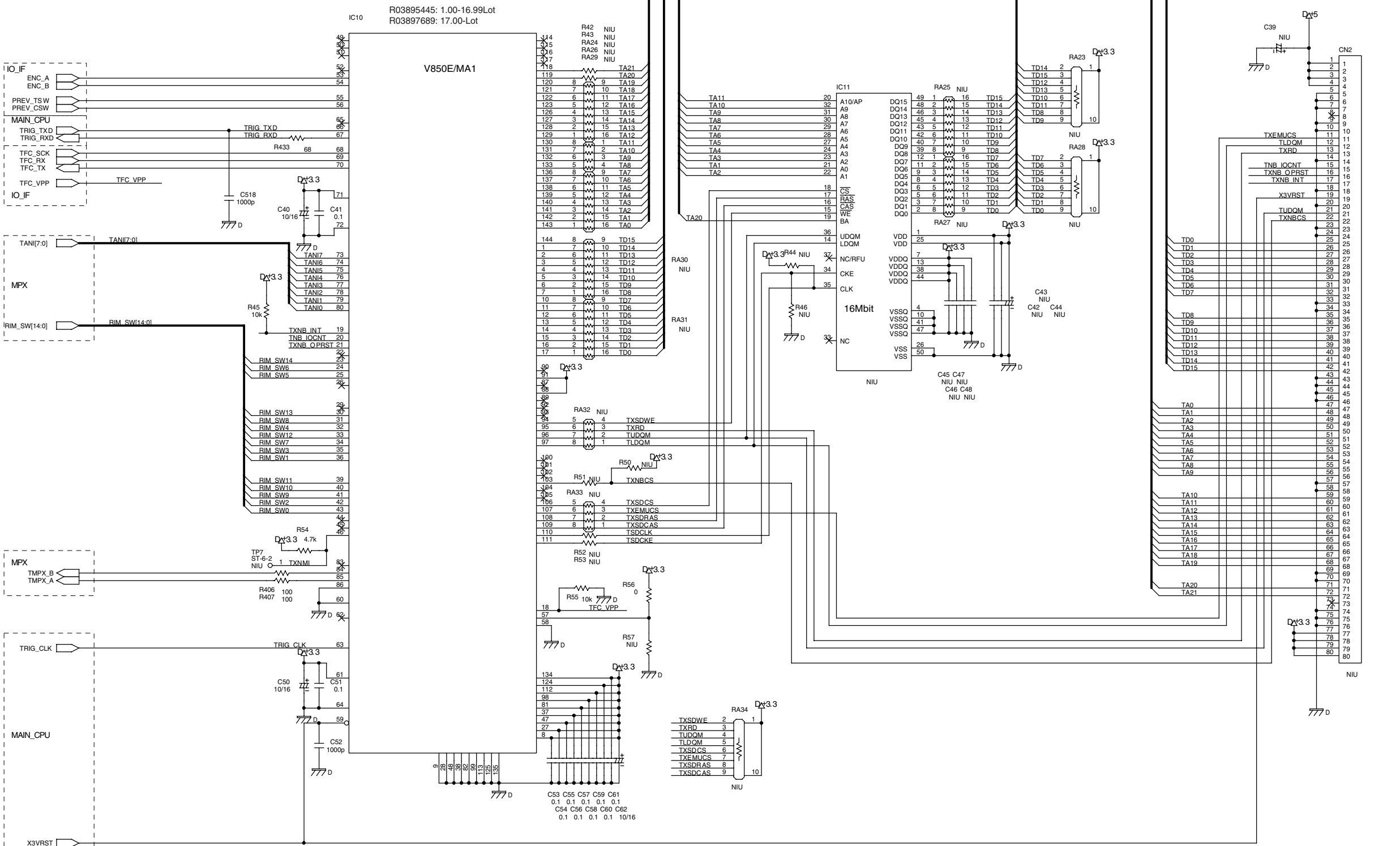
MAIN_CPU



NIU : Means Not In Use

CIRCUIT DIAGRAM(MAIN 2/9)

TRIG_CPU

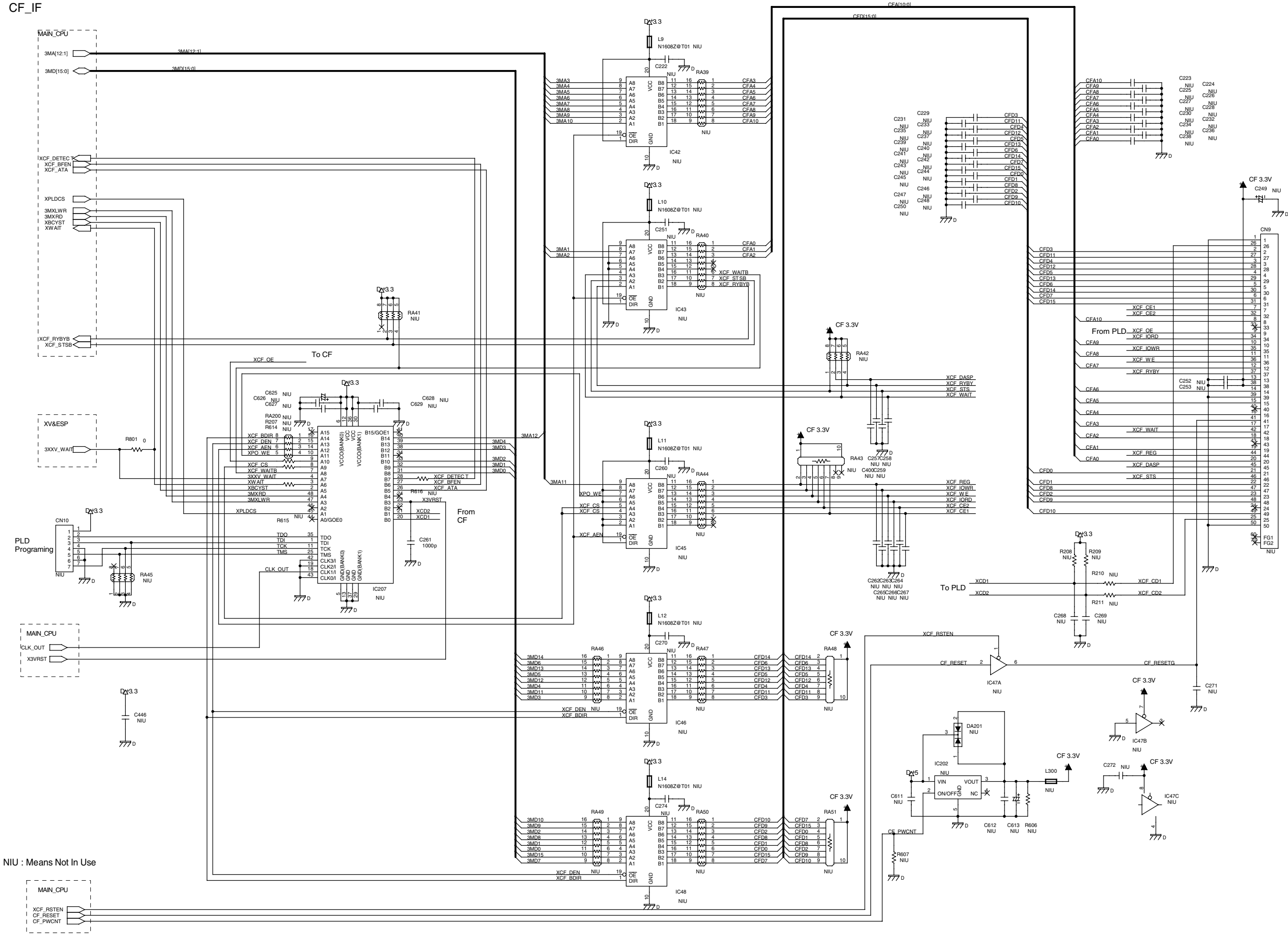


- RIM SW 0 : KICK
 1 : SNARE
 2 : TOM1
 3 : TOM2
 4 : TOM3
 5 : NIU (TOM4)
 6 : HI-HAT
 7 : CRASH1
 8 : CRASH2
 9 : RIDE(BELL)
 10 : RIDE(EDGE)
 11 : AUX1
 12 : AUX2
 13 : NIU (AUX3)
 14 : NIU (AUX4)

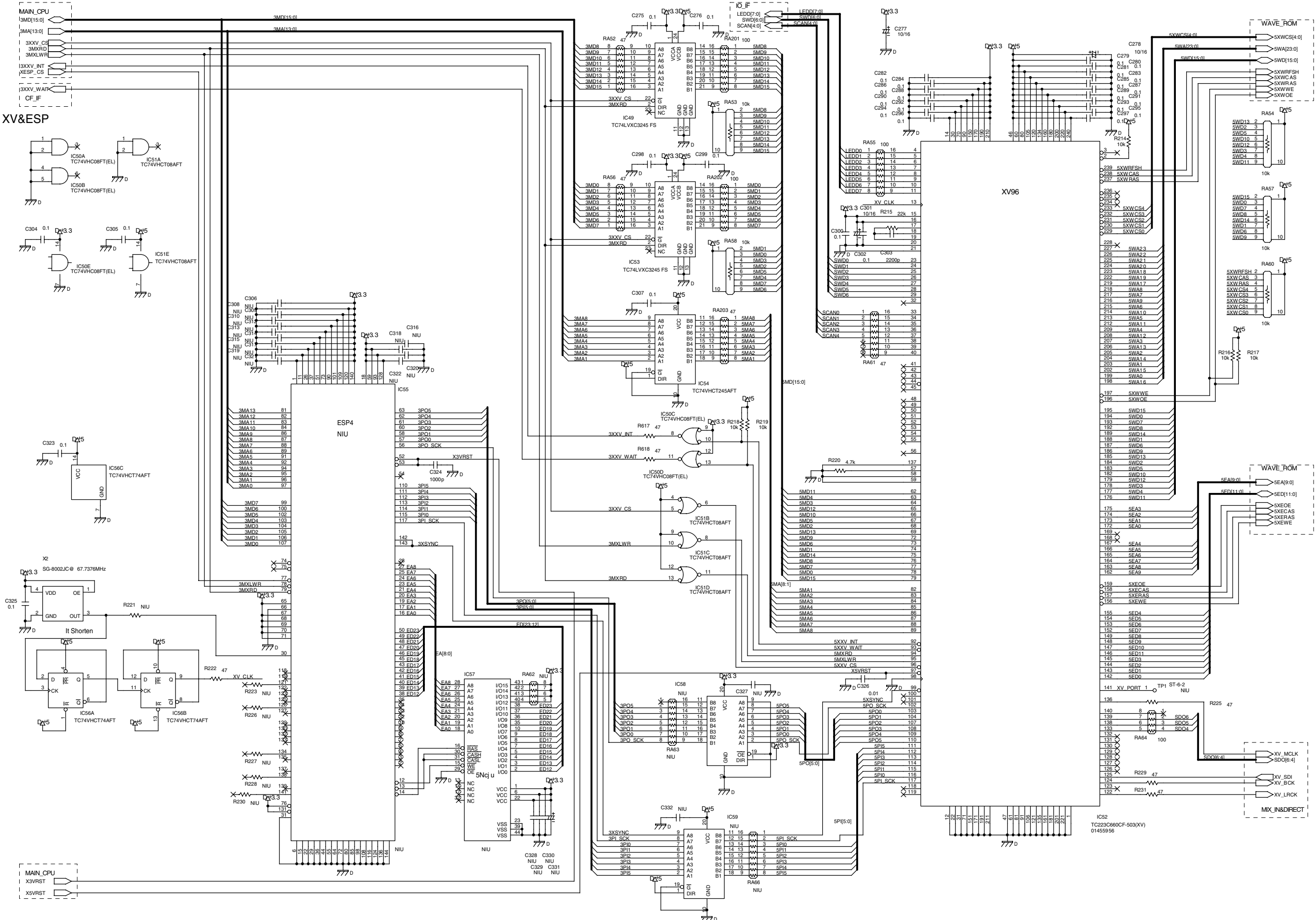
NIU : Means Not In Use

CIRCUIT DIAGRAM(MAIN 3/9)

CF_IF

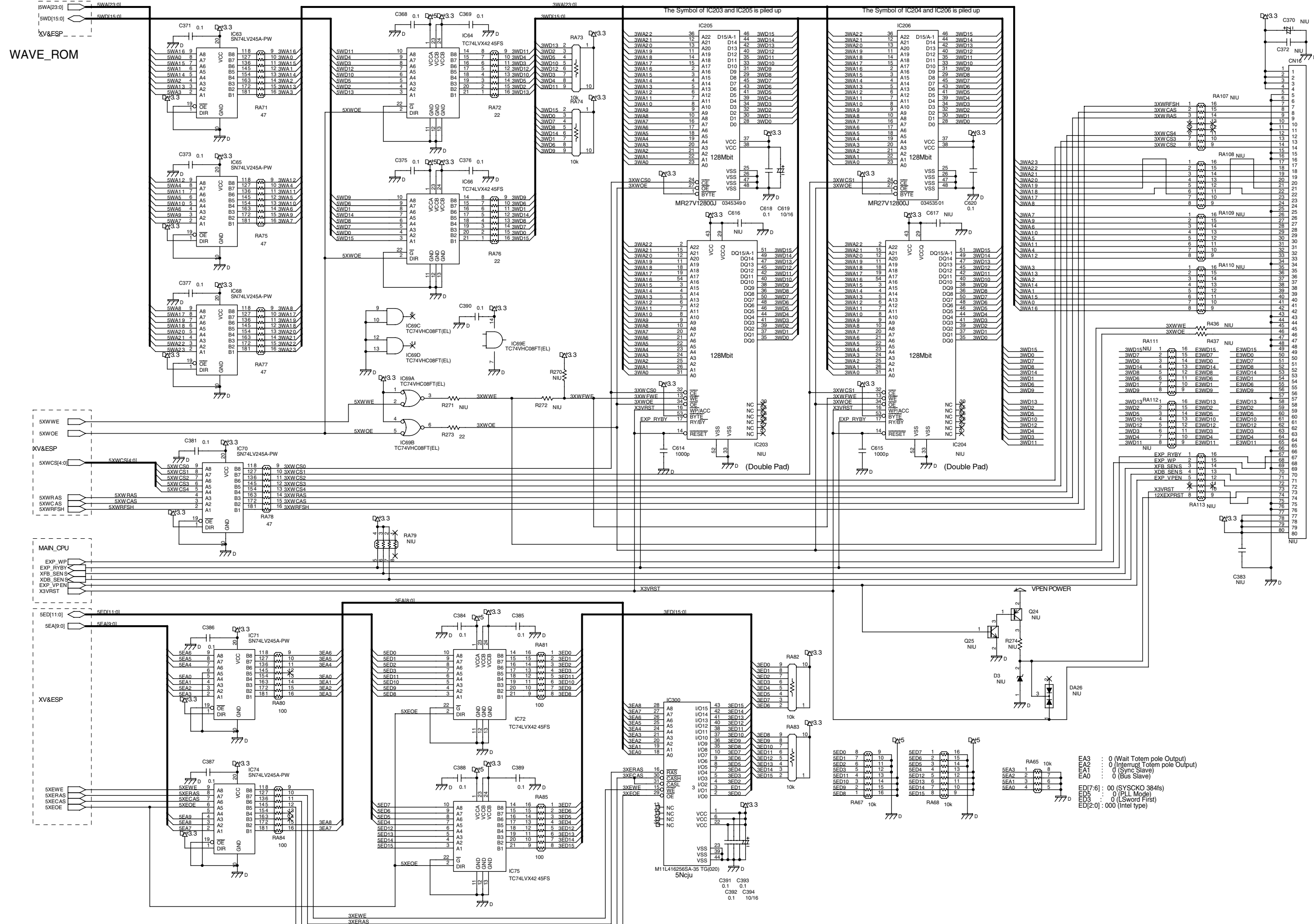


CIRCUIT DIAGRAM(MAIN 4/9)



NIU : Means Not In Use

CIRCUIT DIAGRAM(MAIN 5/9)

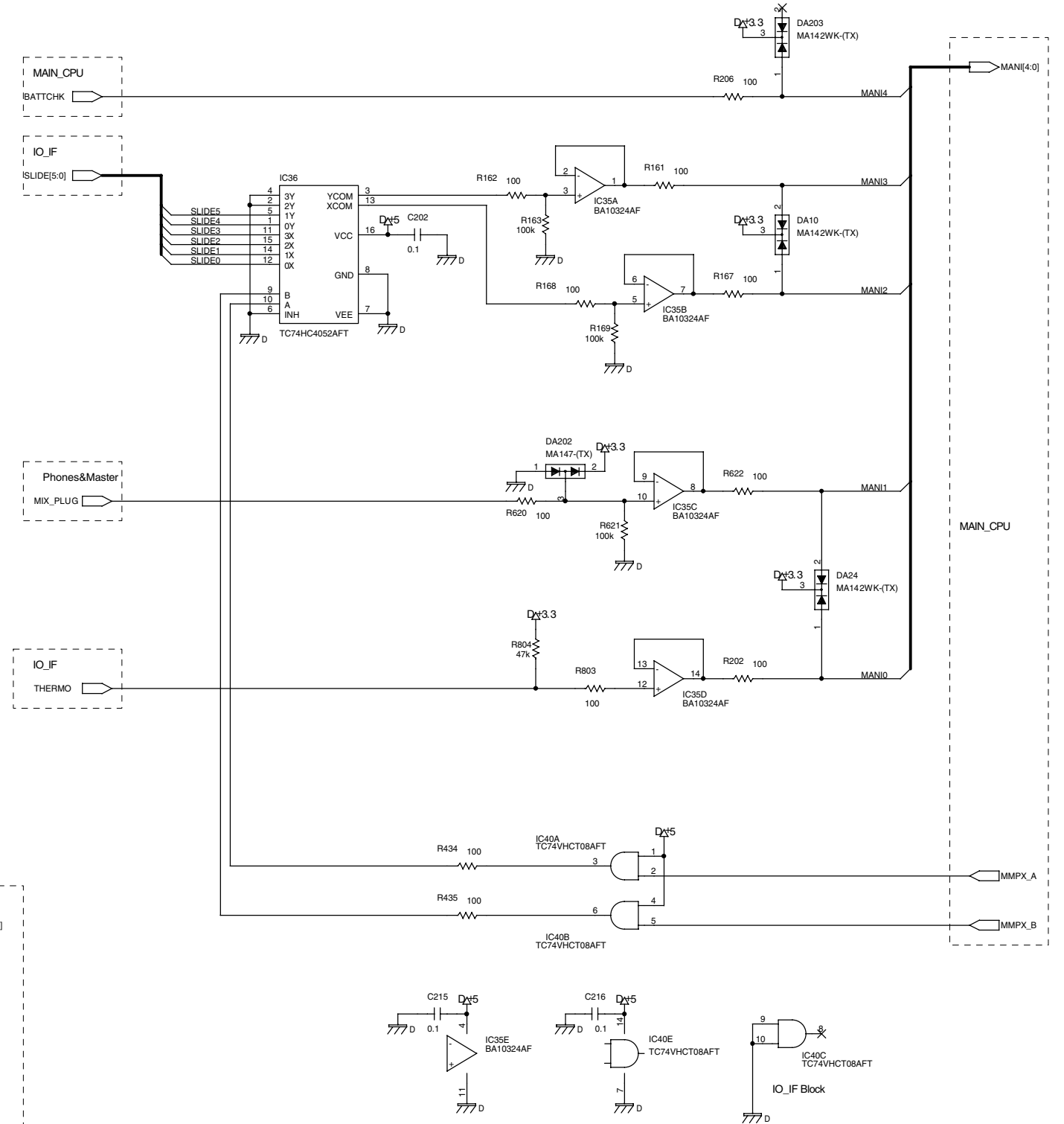
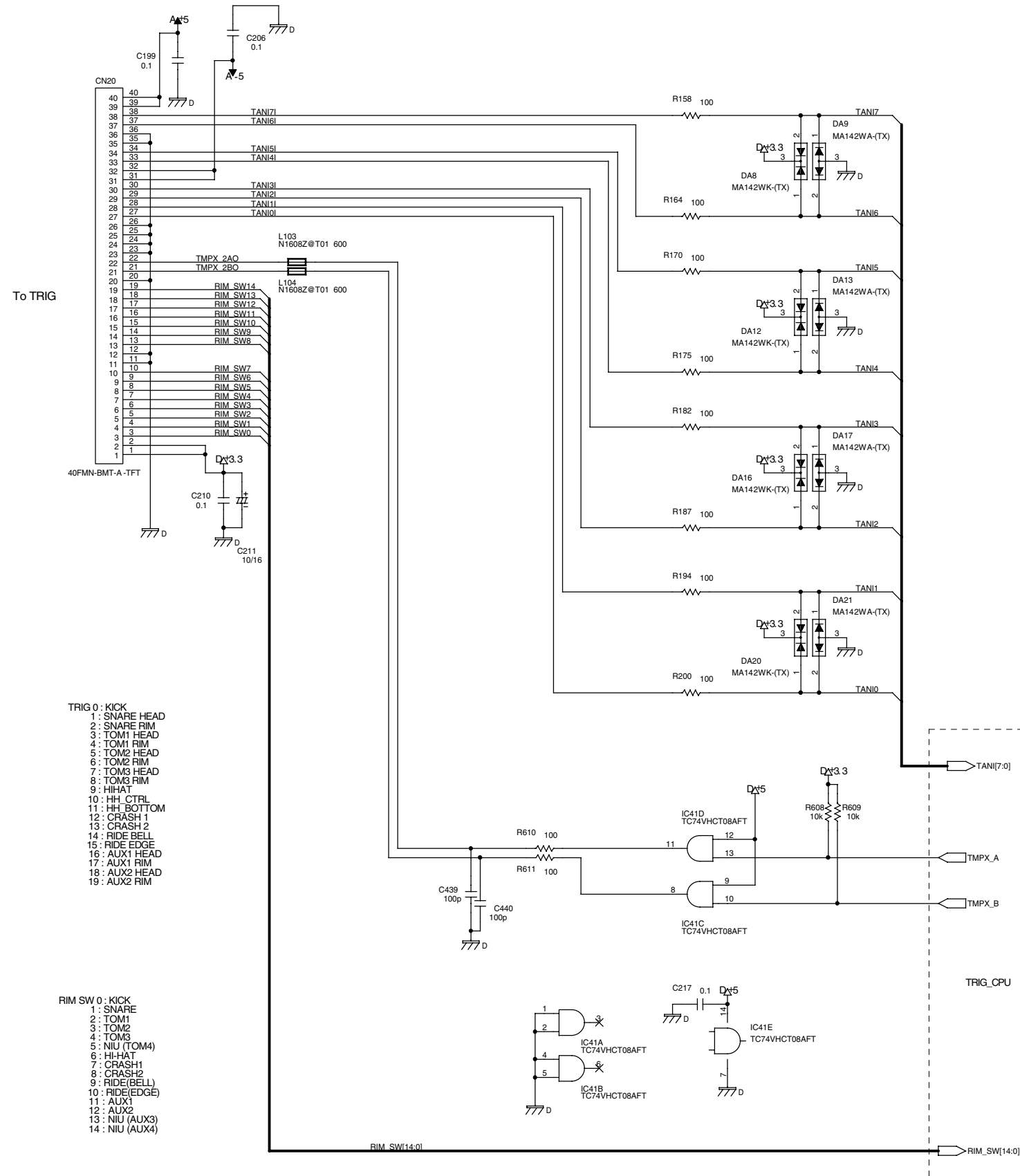


NIU : Means Not In Use

- EA3 : 0 (Wait Totem pole Output)
- EAD : 0 (Interrupt Totem pole Output)
- EA1 : 0 (Sync Slave)
- EAD : 0 (Bus Slave)
- ED[7:6] : 00 (SYSCO 384fs)
- ED5 : 0 (L Mode)
- ED3 : 0 (Sword Hrst)
- ED[2:0] : 000 (Intel type)

CIRCUIT DIAGRAM(MAIN 6/9)

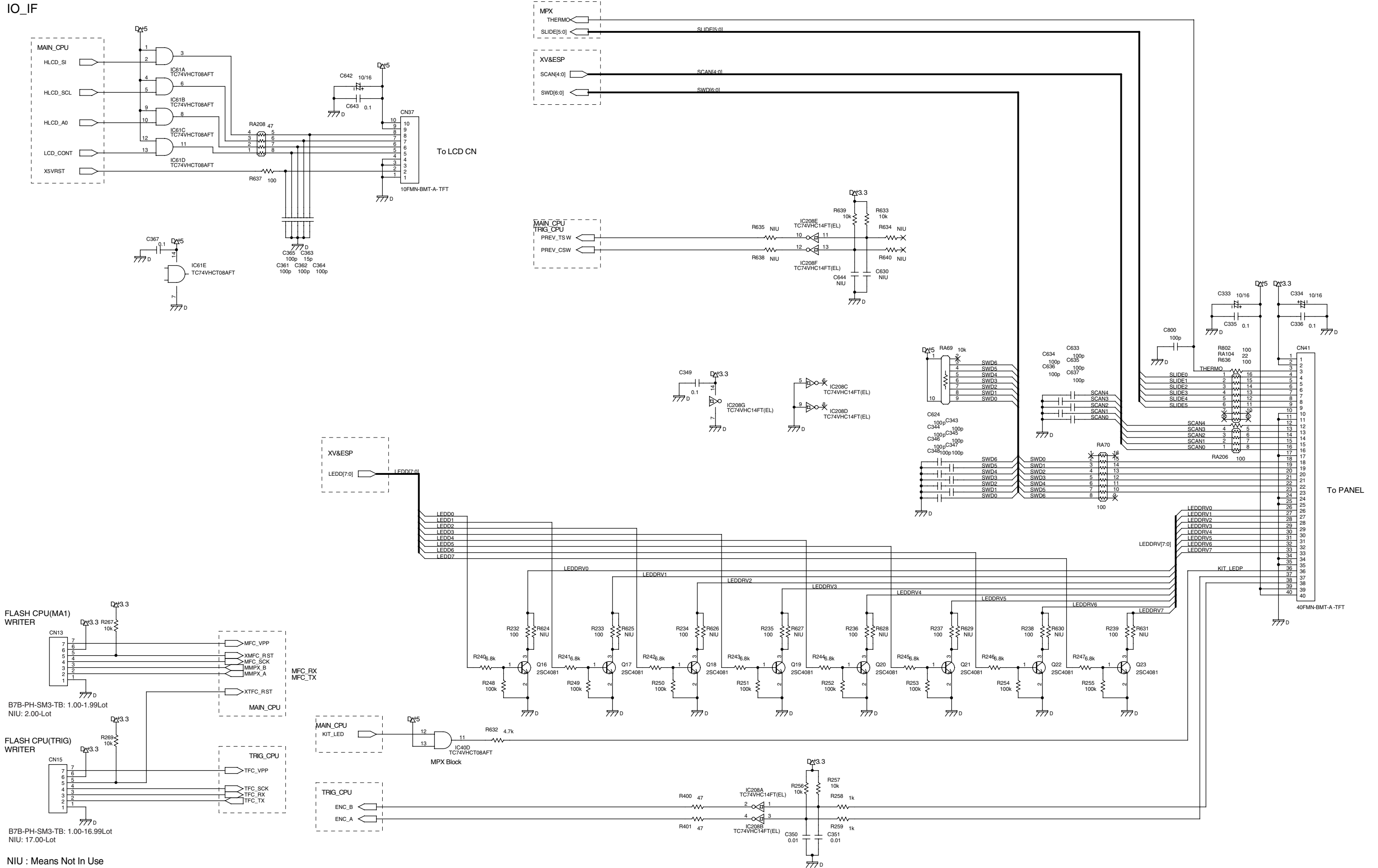
MPX



NIU : Means Not In Use

CIRCUIT DIAGRAM(MAIN 7/9)

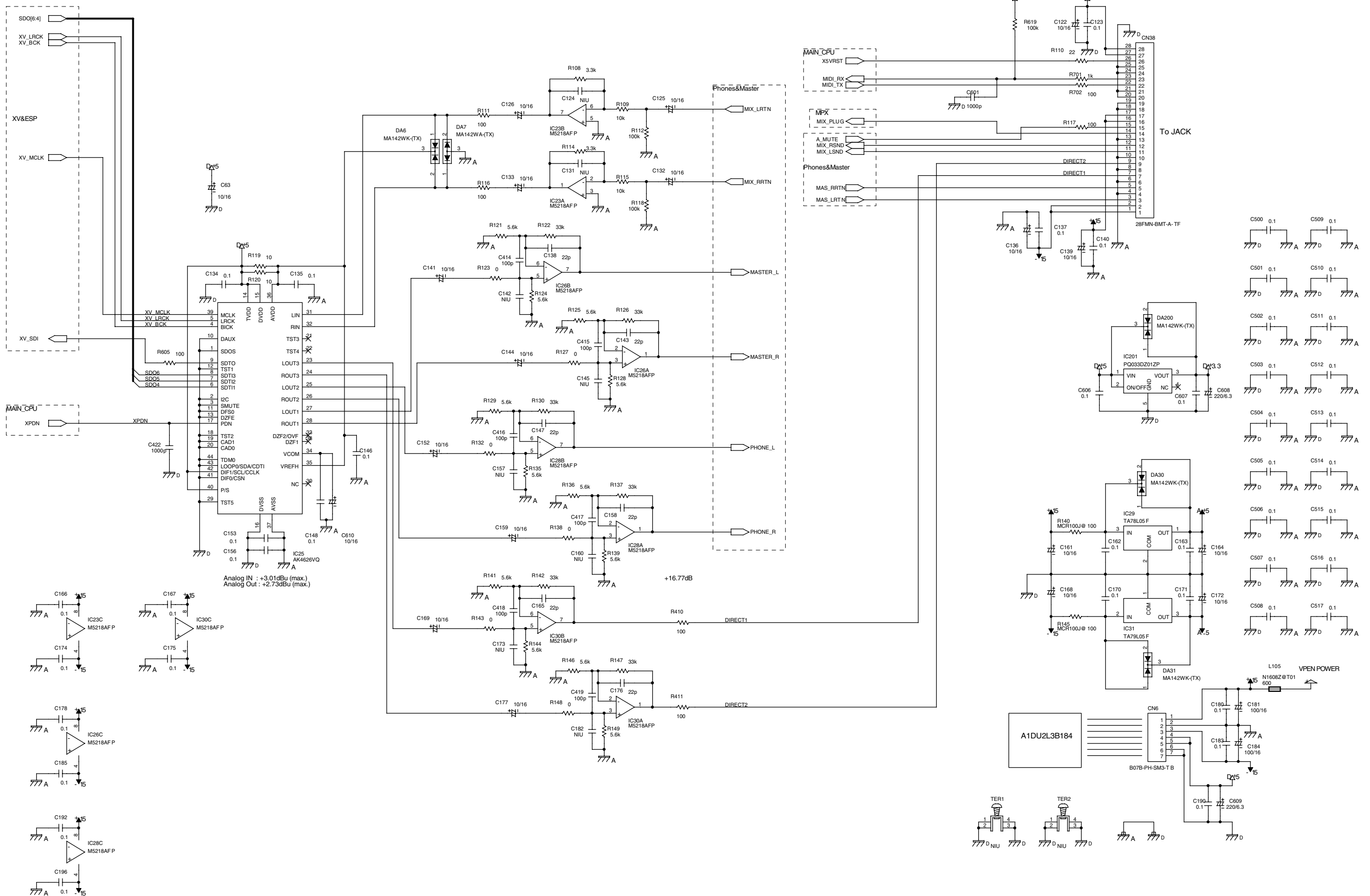
IO_IF



NIU : Means Not In Use

CIRCUIT DIAGRAM(MAIN 8/9)

MIX_IN&DIRECT



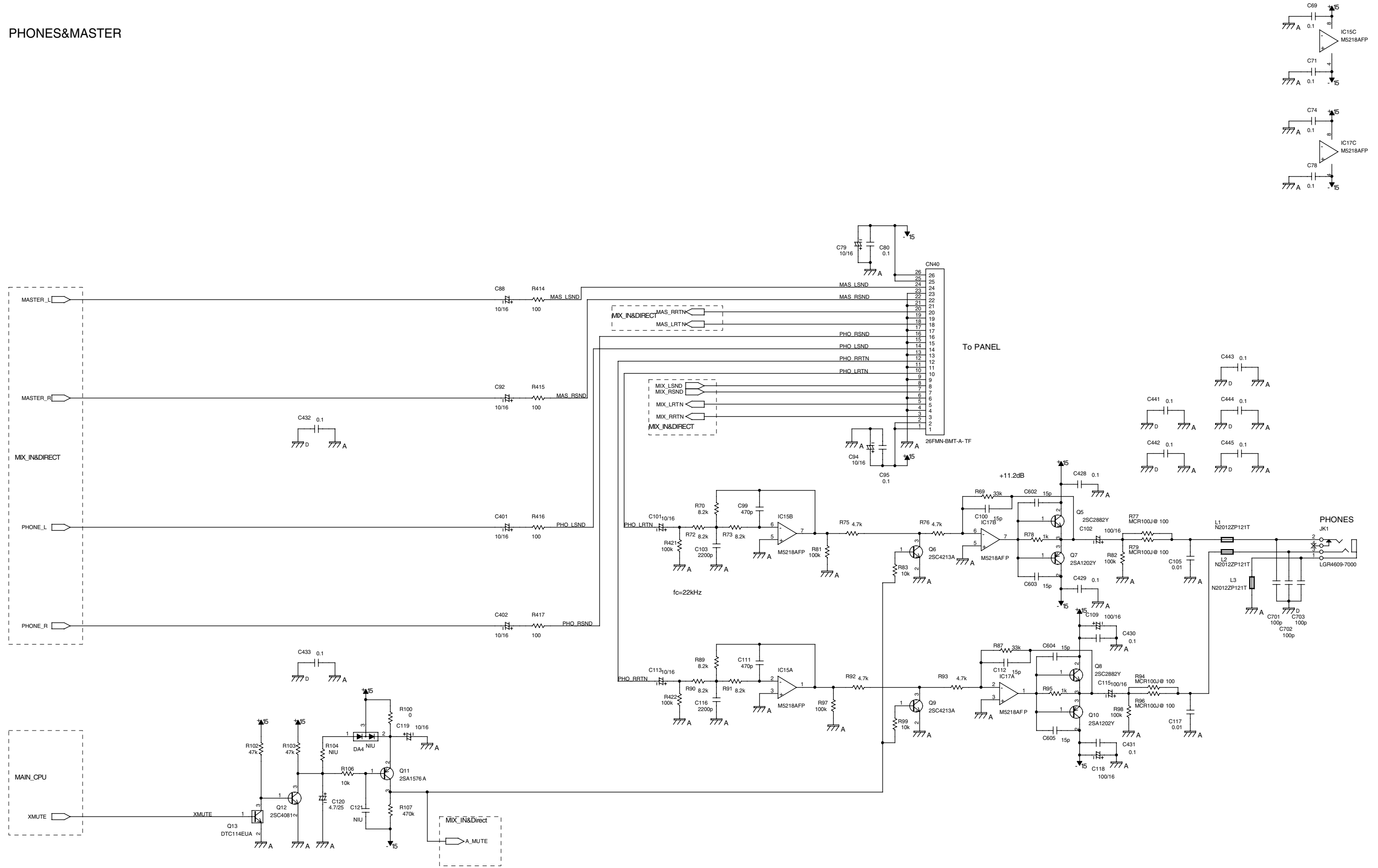
Analog IN : +3.01dBu (max.)
 Analog Out : +2.73dBu (max.)

+16.77dB

NIU : Means Not In Use

CIRCUIT DIAGRAM(MAIN 9/9)

PHONES&MASTER

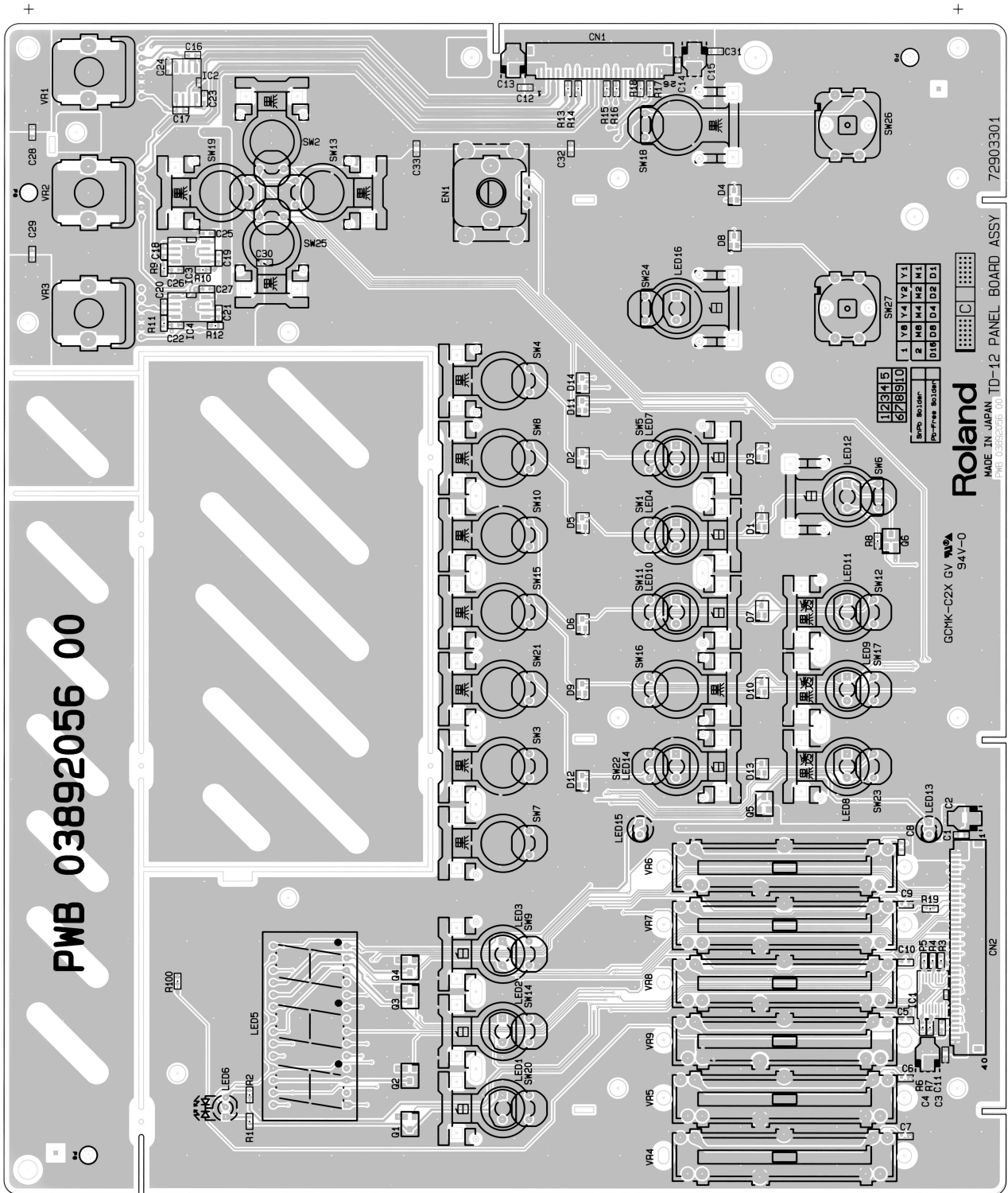


NIU : Means Not In Use

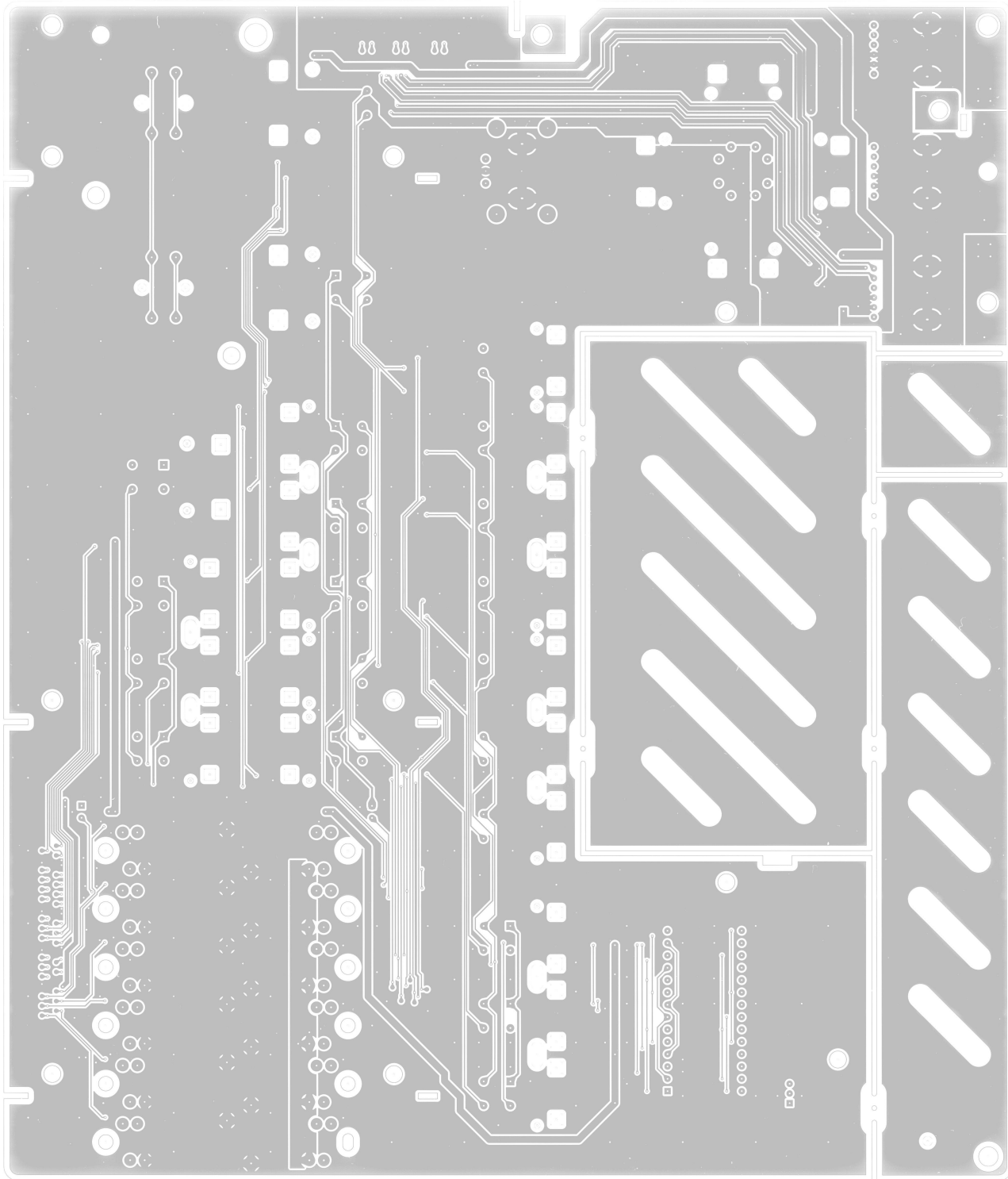
CIRCUIT BOARD(PANEL)

05/02/01 ROLAND 03892056 SILK_BUHIN/WS/WS

PWB 03892056 00



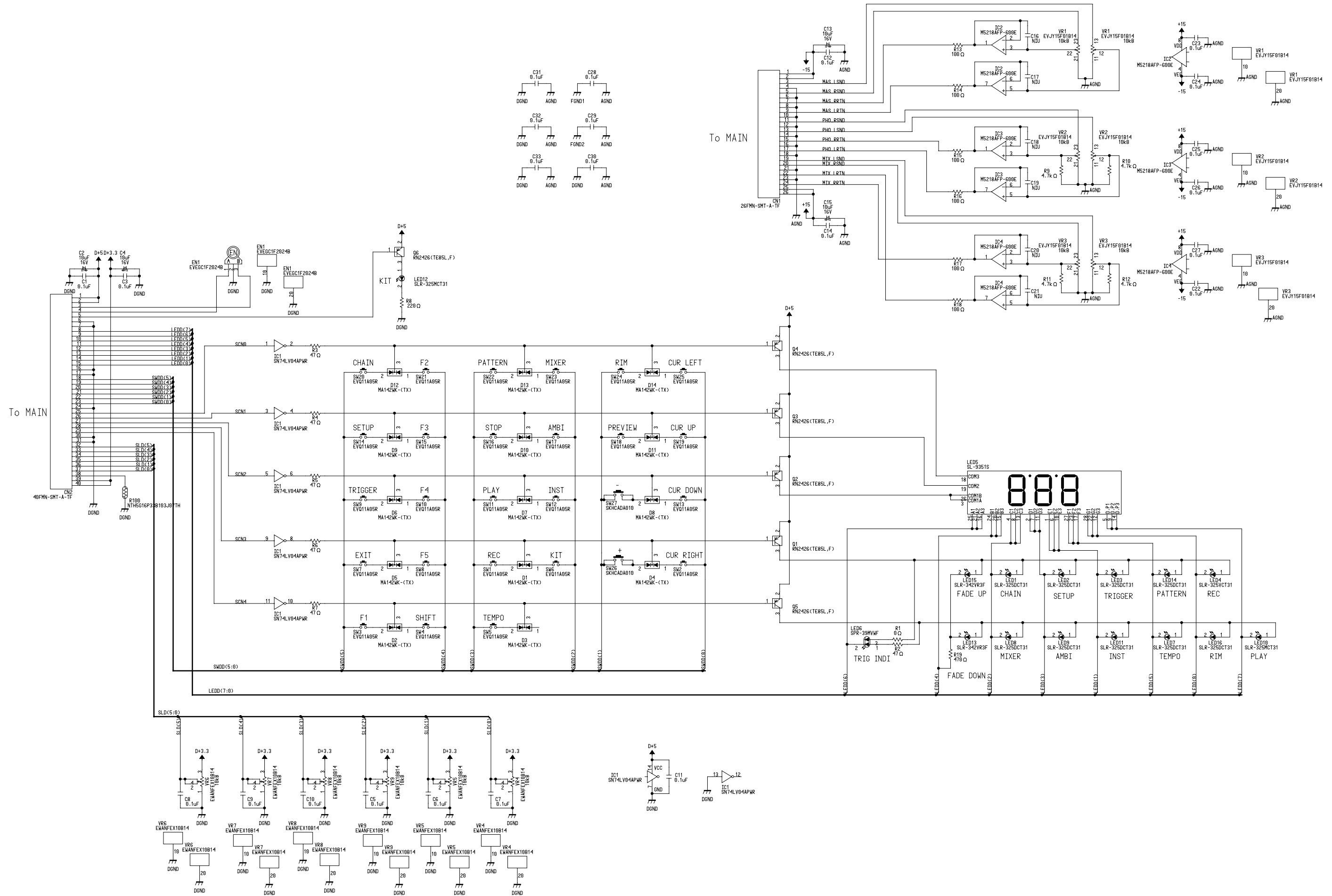
View from components side



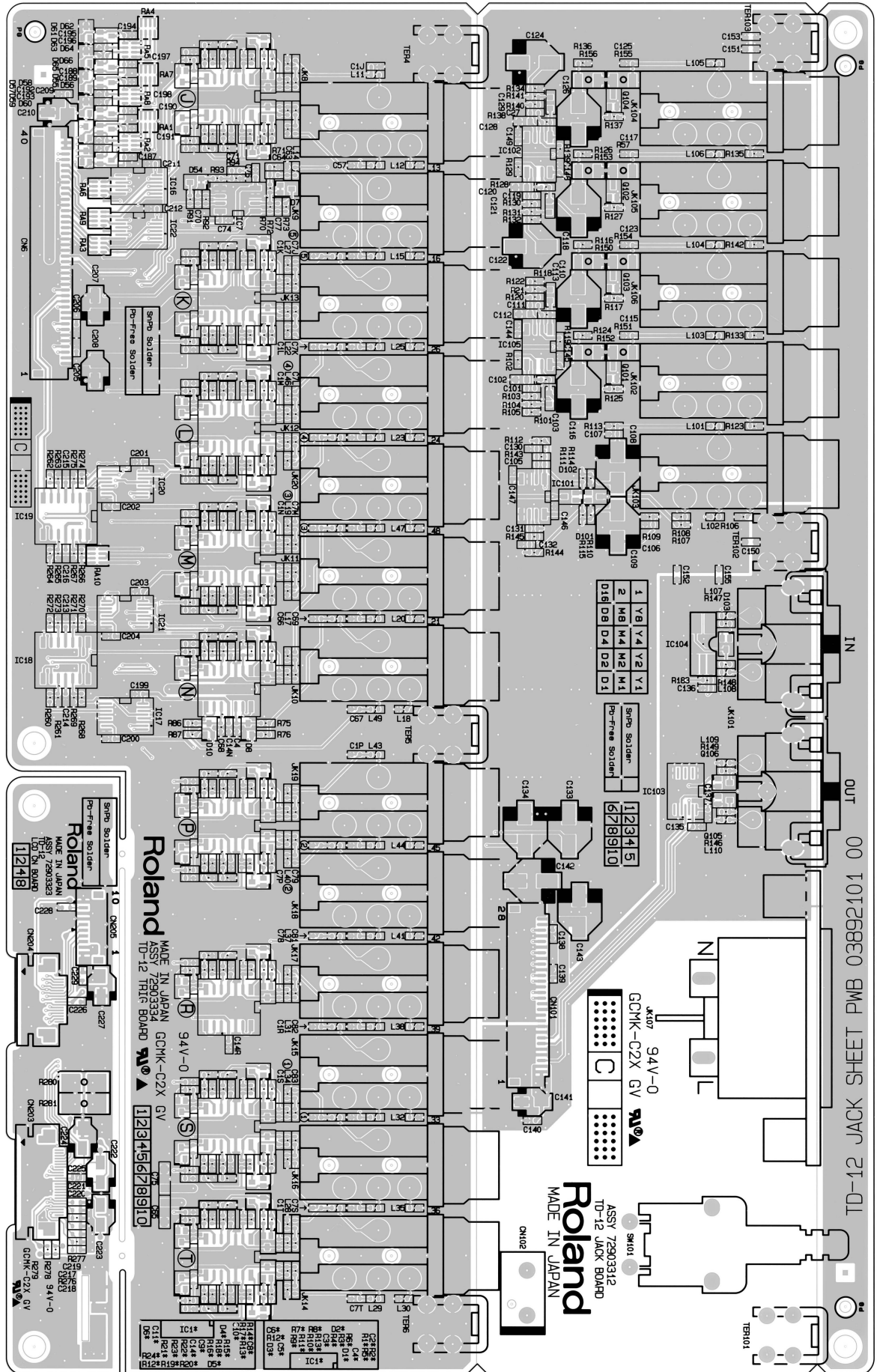
05/01/25 ROLAND 03892056 PATTERN_HANDA/W5

View from foil side

CIRCUIT DIAGRAM(PANEL)



CIRCUIT BOARD(JACK)



2005.01.20 ROLAND 03892101 / UPPER SILKERN

TD-12 JACK SHEET PWB 03892101 00
 IN
 OUT
 94V-0
 GCMK-C2X GV
Roland
 MADE IN JAPAN
 ASSY 72903312
 TD-12 JACK BOARD
 MADE IN JAPAN
 ASSY 72903312
 TD-12 JACK BOARD
Roland
 MADE IN JAPAN

1 2 3 4 5
 6 7 8 9 10

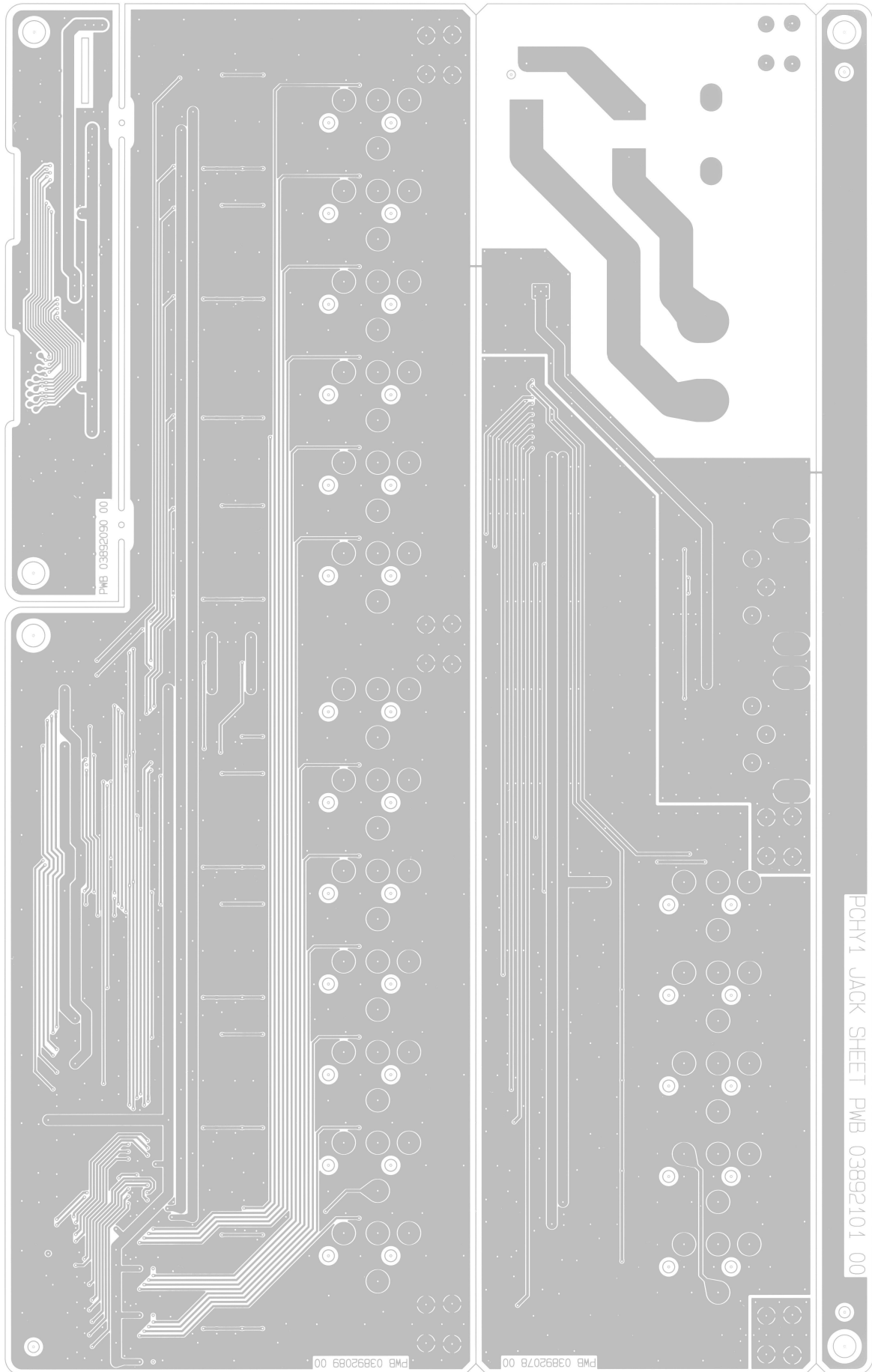
1 YB Y4 Y2 Y1
 2 MB M4 M2 M1
 016 08 04 02 01

Smp Solder
 Pre-Free Solder

1.0 0K05 1
 MADE IN JAPAN
 ASSY 72903334
 TD-12 TRIFL BOARD
Roland
 MADE IN JAPAN
 ASSY 72903334
 TD-12 TRIFL BOARD
Roland
 MADE IN JAPAN

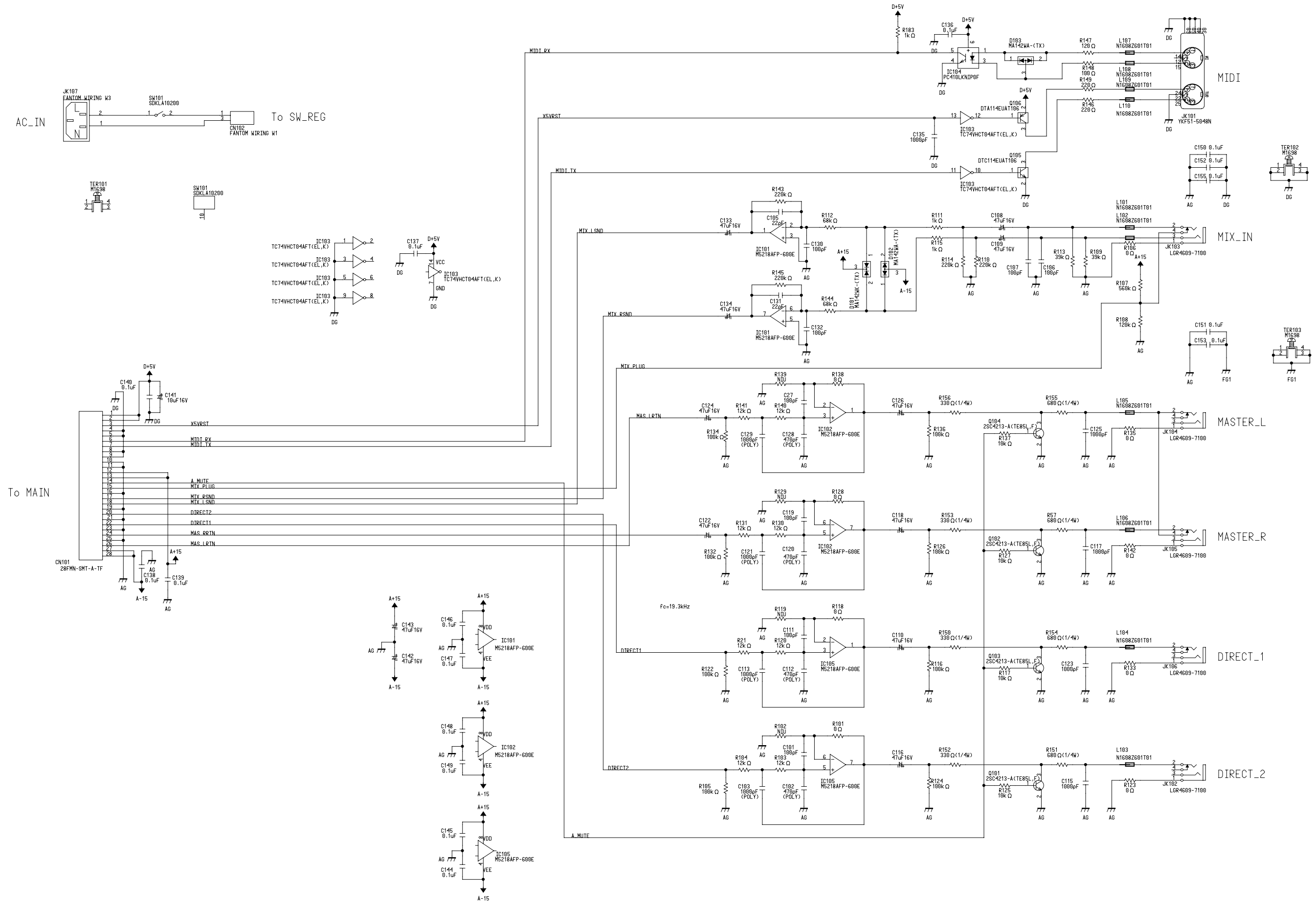
94V-0
 GCMK-C2X GV
Roland
 MADE IN JAPAN
 ASSY 72903312
 TD-12 JACK BOARD
Roland
 MADE IN JAPAN

View from components side



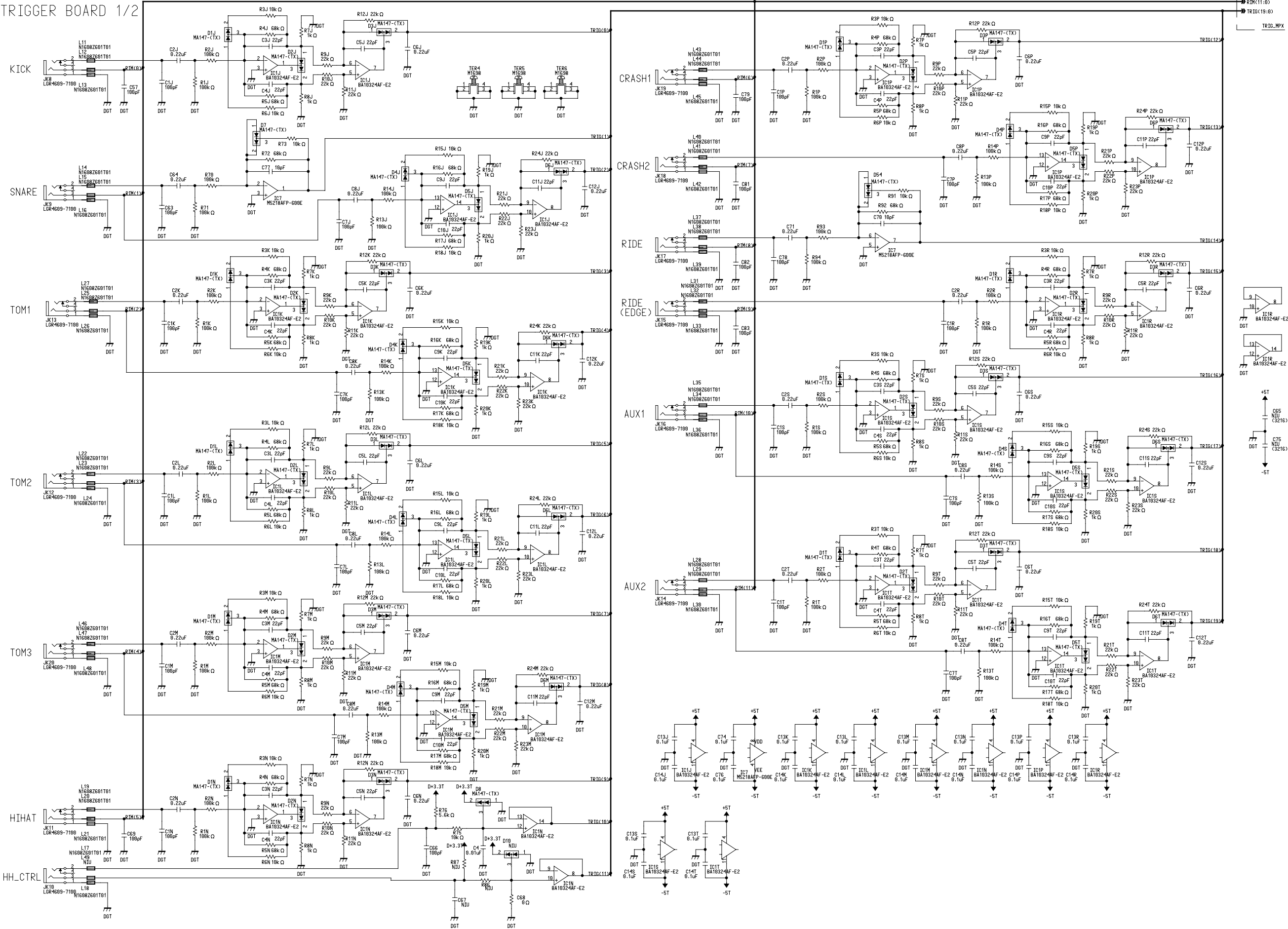
View from foil side

CIRCUIT DIAGRAM(JACK 1/3)



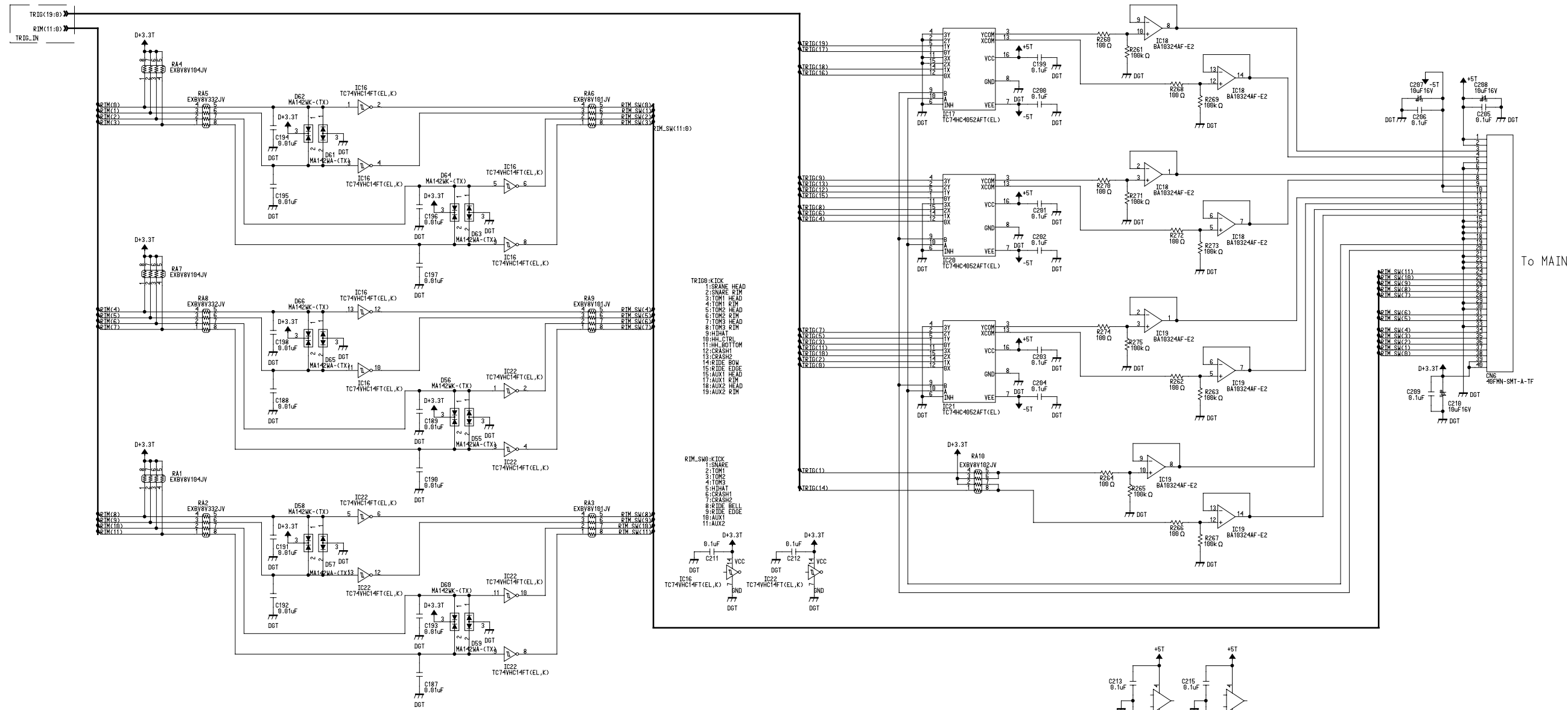
CIRCUIT DIAGRAM(JACK 2/3)

TRIGGER BOARD 1/2

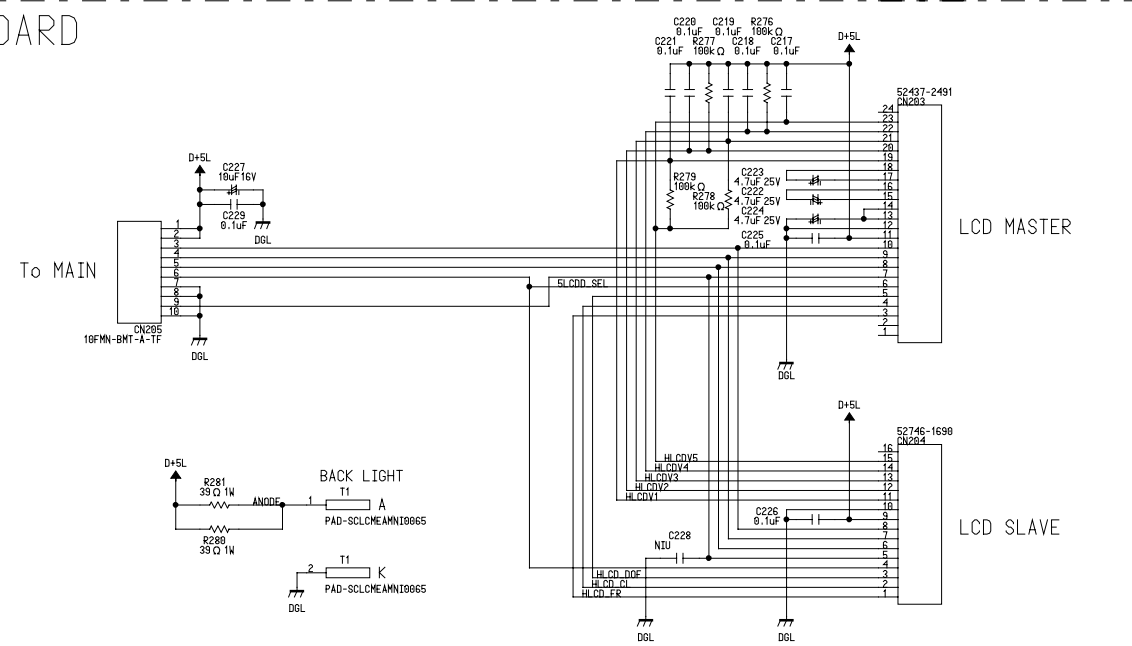


CIRCUIT DIAGRAM(JACK 3/3)

TRIG BOARD 2/2



LCD_CN BOARD



ERROR MESSAGES

Backup Battery Low!

The internal backup battery of the TD-12 (a battery that maintains data in the user memory) has run down.

Replace the battery.

Backup NG!

Data in the TD-12's memory may be corrupted. The TD-12's internal backup battery (the battery used for saving User memory data) is fully drained; internal data has been lost.

Replace the battery. Follow the messages appearing on the screen to carry out Factory Reset; you will then be able to use the unit temporarily.

MIDI Communication Error!

It is possible that the power has been turned off for the MIDI device connected to the TD-20's MIDI IN connector.

Check the power of the connected MIDI device.

System Error!

A problem has occurred with the internal system.

Check whether there is any fault in hardware.

Measure Maximum!

The maximum number of measures that can be recorded to one pattern has been exceeded; no further recording or editing that adds measures can be carried out.

Delete unneeded measures from the pattern being recorded or edited.

Step Maximum!

The maximum number of steps that can be recorded to one chain has been exceeded; no further editing that adds steps can be carried out.

Delete unneeded steps from the chain being edited.

Data Overload!

Pattern contained an excessive amount of data, and as a result could not be output successfully from MIDI OUT.

Try eliminating a part that has too much data.

Not Enough Memory!

Pattern recording or editing could not be carried out because there was not enough internal memory.

Try deleting patterns that are no longer needed.

BULK DUMP Checksum Error!

The checksum value of a system exclusive message was incorrect.

Correct the checksum value.

BULK DUMP Receive Address Error!

The receive address of a system exclusive message was incorrect.

Correct the receive address.

BULK DUMP Receive Data Error!

A MIDI message was received incorrectly.

If the same error message is displayed repeatedly, there is a problem with the MIDI messages that are being transmitted to the TD-12.

BULK DUMP Receive Time Out!

The interval in receiving system exclusive messages were too long.

Make the interval of the data shorter.

Messages

BULK DUMP Receiving... Please Wait.

Bulk data is now being received.

BULK DUMP Aborted!

Bulk data transmission was halted.

Preset Pattern!

You cannot record on the preset pattern.

Copy the pattern onto a user pattern.

Empty Pattern!

This pattern contains no performance data; it cannot be edited.

Select the other pattern that contains performance data.

No Empty Pattern!

There are no empty patterns for recording.

Delete unneeded pattern.

MIDI Offline!

A MIDI cable was disconnected. (Or communication with the external MIDI device stopped for some reason.)

Make sure that MIDI cables have not been pulled out or broken.

MIDI Buffer Full!

A large amount of MIDI messages were received in a short time, and could not be processed completely.

Confirm that the external MIDI device is properly connected. If the problem persists, reduce the amount of MIDI messages sent to the TD-12.

Power On Too Long. Please Turn Off!

The power remains ON for a long time.

Turn the TD-12's power off, then turn on again.

Auto Shutdown Completed. Please Turn Off!

The power remains ON for a long time.

Turn the TD-12's power off, then turn on again.